DOCUMENT DATA FORM **Your Name: Nick Carino**

Document Title or Description (max. 254 characters): Circle: Same as cover (or fill in below)

Drawing book 7 Chapter 7: Floor trusses

Include work order no. and floor no. if applicable

Roll # DB03	**Doc. ID (report #, dwg. #):**	
Document Date: 1969	**Document Author Name:**	**Author Organization:** SHC&R

KEYWORDS – HIGHLIGHT ALL THAT APPLY

Level 1

Bankers Trust	Project 4	WTC 1 - North Tower	Add
Below Grade	Project 5	WTC 2 - South Tower	
Concourse	Project 6	WTC 3 - Marriot Hotel	
Electrical Substation	Project 7	WTC 4 - South Plaza Bldg.	
Liberty Plaza	Project 8	WTC 5 - North Plaza Bldg	
PATH Station	WFC 1 - Oppenhiemer Dow	WTC 6 - Customs House	
PATH Terminal	WFC 2 - Tower B	WTC 7	
Project 1	WFC 3 - American Express	WTC Complex	
Project 2	WFC 4 - Tower D	WTC Plaza	
Project 3			

Level 2

Accident analysis & risk	Fire protection	Misc. Performance Problems	Structural
Architectural	Fire service	News coverage	Tenant alterations
Data request	Landscaping	Police	Tenant Space
Emergency management	Management	Security	Add
Evacuation	Mech./elec.		

Level 3

1993 explosion	Cranes	Frame	Roof	Weight
A/E fitout	Criteria	Frame analysis	Safety	Weld detail
A-242	Dampers	Frequency	Schedule	Weld size
A-36	Debris	Fuel	Sculpture	Welding
A-497	Deck	Furniture layout	Security system	Wind
Aircraft impact	Deflection	Generators	Shear knuckle	Windows
Air cooled condensers	Demolition	Guidelines	Shear test	Yield strength
Analysis	Design	Gypsum board	Shear Stud	Add
Angles	Detailing	Hat truss	Shop drawings	Drawing books
Antenna	Doors	Human comfort	Shortening	
Artifacts	Drawings	HVAC	Slab	
Asbestos	Eastern States Steel	Index	Slurry wall	
Base plate	Egress	Inspection	Smoke control	
Beams	Elevator	Insulation	Smoke test	
Bid documents	Elevator Shaft	Job number	Spandrel beam	
Bid Invitation	Emergency communications	Joist	Specifications	
Bow tie	Equipment	L-50	Splices	
Bracing	Erection marks	Lighting	Sprinkler	
Bridging truss	Errors & Omissions	Loads	Stability	
Building code	Escalator	Maintenance	Stairways	
Calculations	Expansion joint	Marking	Standards	
Carpet	Exterior columns	Mesh reinforcement	Steel	
Ceilings	Fabrication	Mill inspection	Steel composition	
Certification	Family member	Model	Stiffness	
Chillers	Field survey	Mullion	Structural review	
Cladding	Fire alarms	Operations	Surveillance	
Collapse	Fireproofing	Paint	Survey	
Columns	Fire spread	Partition layout	Survivor	
Communication systems	Fire testing	Partitions	Tenant list	
Composite truss	Firetower	Photos	Tenant occupancy	
Computer output	Flag Pole	Pipes	Testing	
Computer program	Flammability	Plumbing	Tie	
Concrete	Floor	Prestressing	Tolerances	
Connections	Floor load	Probability, uncertainty	Transfer Girders	
Construction	Floor slab	Quality control	Triad	
Contract	Floor system	Ramp	Truss	
Core beams	Floor trusses	Reinforcing (strengthening)	Vestibule	
Core columns	Formwork	Renovation	Vibration	
Corrosion	Foundations	Repair	Walls	
Cracking	Fracture	Research & Development	Water supply	
			Weather	

WTCI-1061-LERA

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE FLOOR TRUSSES - INDEX & GENERAL NOTES | DATE 1-17-69

REVISIONS

2-3-69
3-3-69
3-19-69
4-1-69
4-21-69
printed 5-1-69

GENERAL NOTES

1. All material, including detail material to be Fy = 50 except as noted. 1½" x 5/8" Straps(Detail 12),15" & 18" channels(Detail 13) and deck support angles(Detail 12 & 16) to be Fy = 36.
2. All welding shall be accomplished using E70xx low hydrogen electrodes or other equivalent, approved welding process. Field welding shall be performed under Contract WTC-230.00.
3. All bolted connections shall be friction type connections. All bolts shall be ASTM A325, bolts except where ASTM A490 bolts are specifically called for in the drawings. Washer shall be used under both bolt head and nut at all locations with oversize or elongated holes, in accordance with the requirement of FB1, FB2 & FB3. Bolts and washers will be supplied under Contract WTC-234.00 and installed under Contract WTC-230.00.
4. All floor truss angles have long legs back to back or vertical unless noted (SV) in the drawings, in which case, short legs shall be back to back or vertical.
5. Forces in truss members are indicated thus in the drawings:

   Compression (-)
   Tension (+)
6. All 29T trusses shall be cambered to a parabolic camber. Camber diagrams 7-B7-26 indicates required camber at mid span.
7. Truss details are shown in 7-B8. See index 7-B8-1.
8. See SB-18, SB-19, SB-20 & SB-21 for location of trusses. See SB-18, SB-19, SB-20, SB-21 and this chapter of Drawing Book 7 (7-B7) for location of Details.
9. See SB-184, SB-185, SB-186 & SB-187 for Steel Deck Plans and Shear stud location and number. Steel deck shall be furnished under Contract WTC-222.00 and installed under Contract WTC-230.00. Shear studs shall be furnished and installed under Contract WTC-230.00
10. Seats for trusses at core perimeter are shown in Drawing Book 6 and furnished under Contract WTC-226.00. Seats for trusses at the exterior wall are shown in Drawing Book 4 and furnished under Contract WTC-214.00.
11. Work lines for diagonal and vertical web members shall be the applicable X or Y dimension shown in the AISC Manual, Sixth Edition, rounded to the nearest 1/16 inch, except that where a specific work line is dimensioned in the Drawings, the dimensioned work line shall be used.

INDEX

7-B7-1	Index & General Notes
7-B7-2	Floor Truss 29T1, 29T1.1, 29T1.2
7-B7-3	Floor Truss 29T2
7-B7-4	Floor Truss 29T3
7-B7-5	Floor Truss 29T4, 29T4.1, 29T4.2
7-B7-6.1	Floor Truss 29T5 & 29T6
7-B7-6.2	Floor Truss 29T5 & 29T6
7-B7-7	Floor Truss 29T7 & 29T8
7-B7-8	Floor Truss 29T9
7-B7-9	Floor Truss 29T10 & 29T11
7-B7-10	Floor Truss 29T12
7-B7-11	Floor Truss 29T13
7-B7-12	Floor Truss 29T14
7-B7-13	Floor Truss 29T15
7-B7-14	Floor Truss 29T16
7-B7-15	Floor Truss 29T17
7-B7-16	Floor Truss 29T18
7-B7-17	Floor Truss 29T19
7-B7-18	Floor Truss 29T20
7-B7-19	Floor Truss 29T21 & 29T22
7-B7-20	Floor Truss 29T23 & 29T24
7-B7-21	Floor Truss B1, B2, B3, B4
7-B7-22	Floor Truss B5, B6, B7
7-B7-23	Floor Truss B10, B11, B12, B13
7-B7-24	Floor Truss B14, B15, B16, B17
7-B7-25	Floor Truss B18, B19, B20
7-B7-26	Floor Truss, Camber Diagrams

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

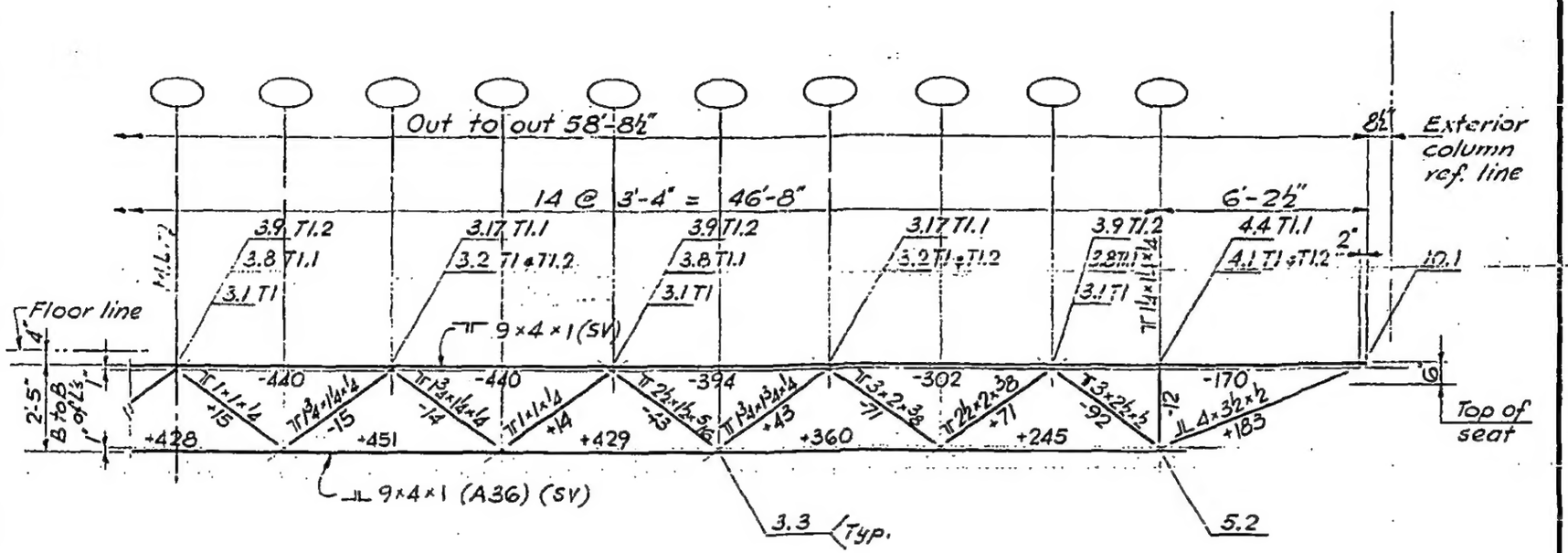
REVIEWED W. Brewer R

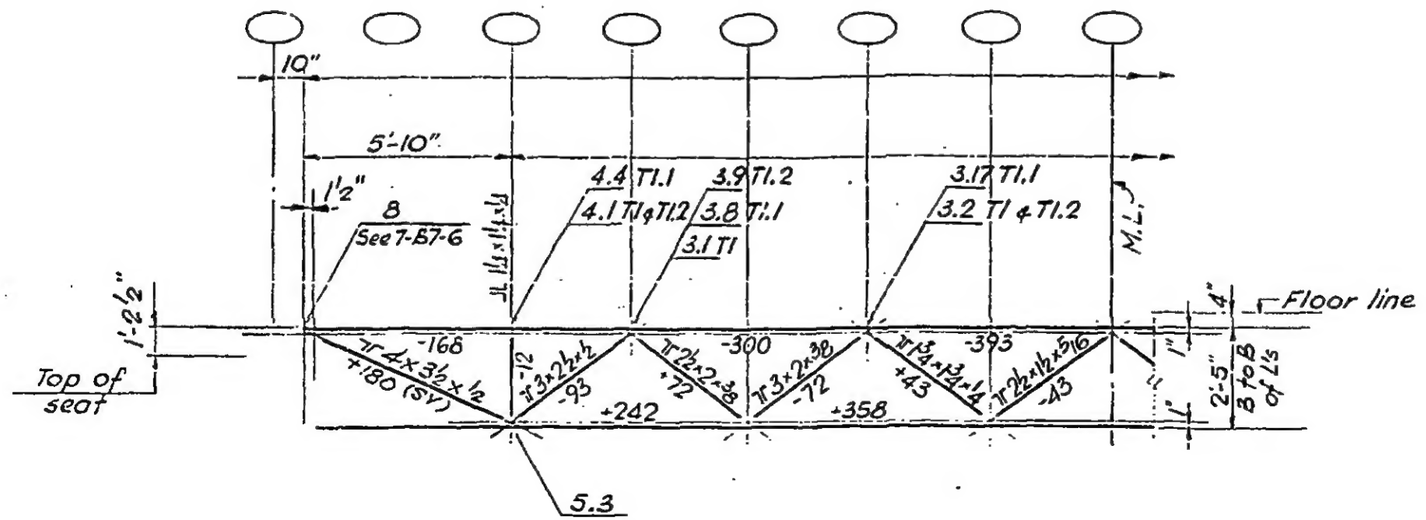
7-B7-1

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T1, 29T1.1, 29T1.2 | DATE: 3-19-69

REVISIONS





LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 21360 — NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

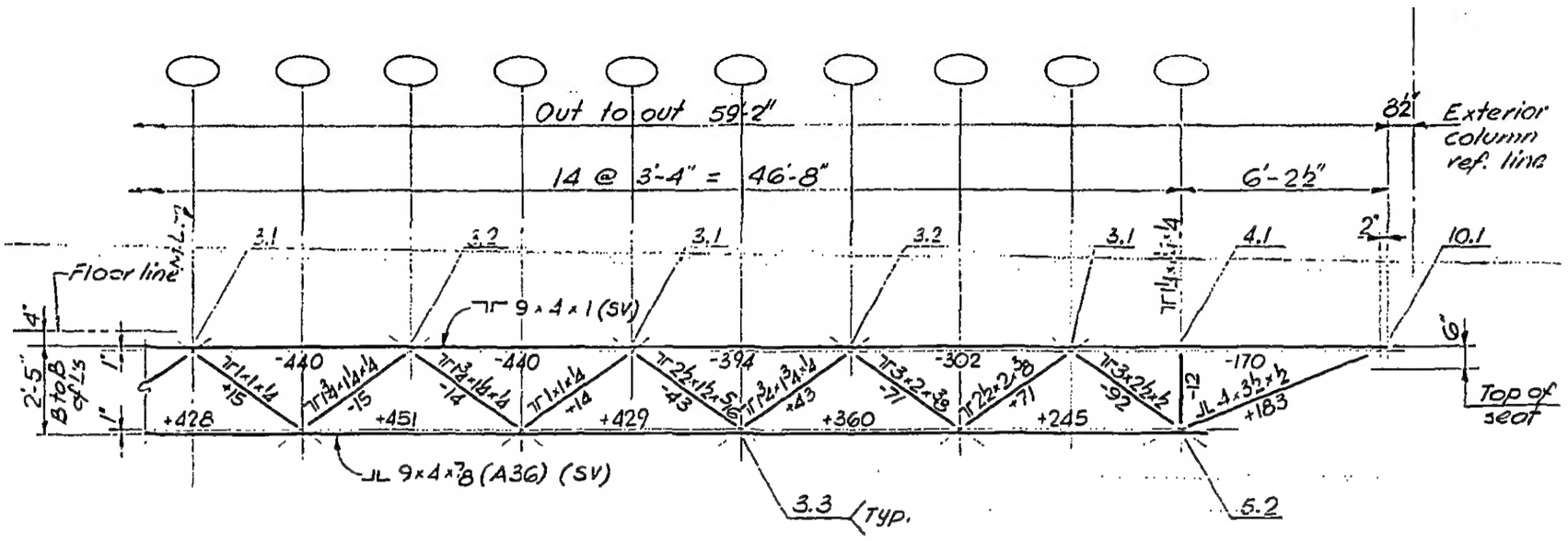
REVIEWED W. Brewer

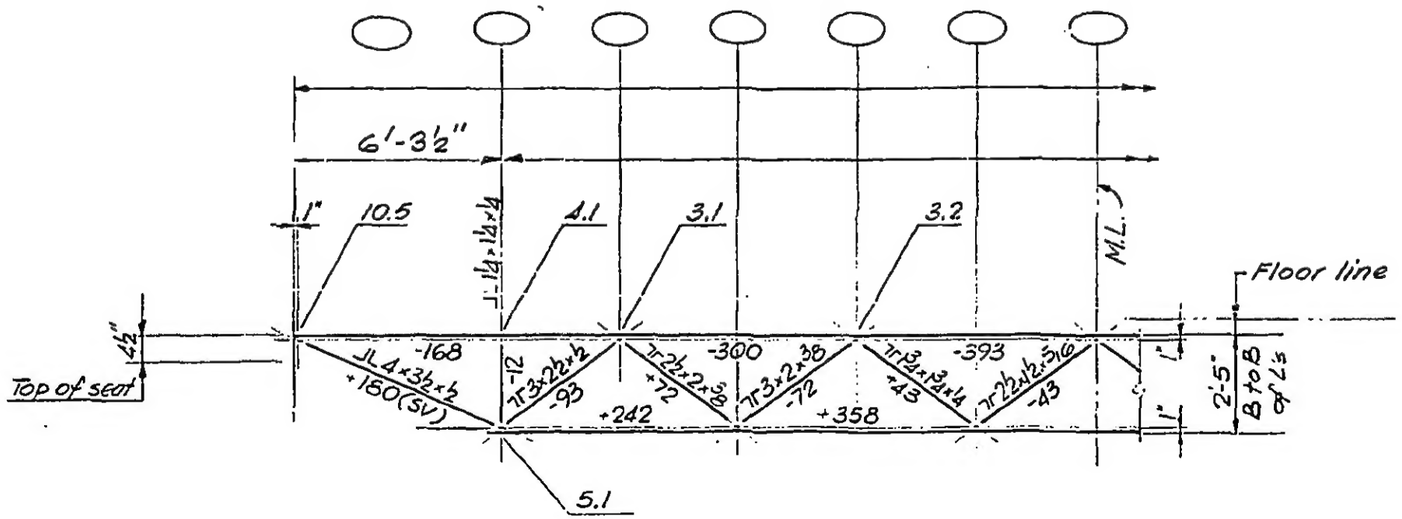
7-B7-2

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T2 | DATE: 3-19-69

REVISIONS





LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

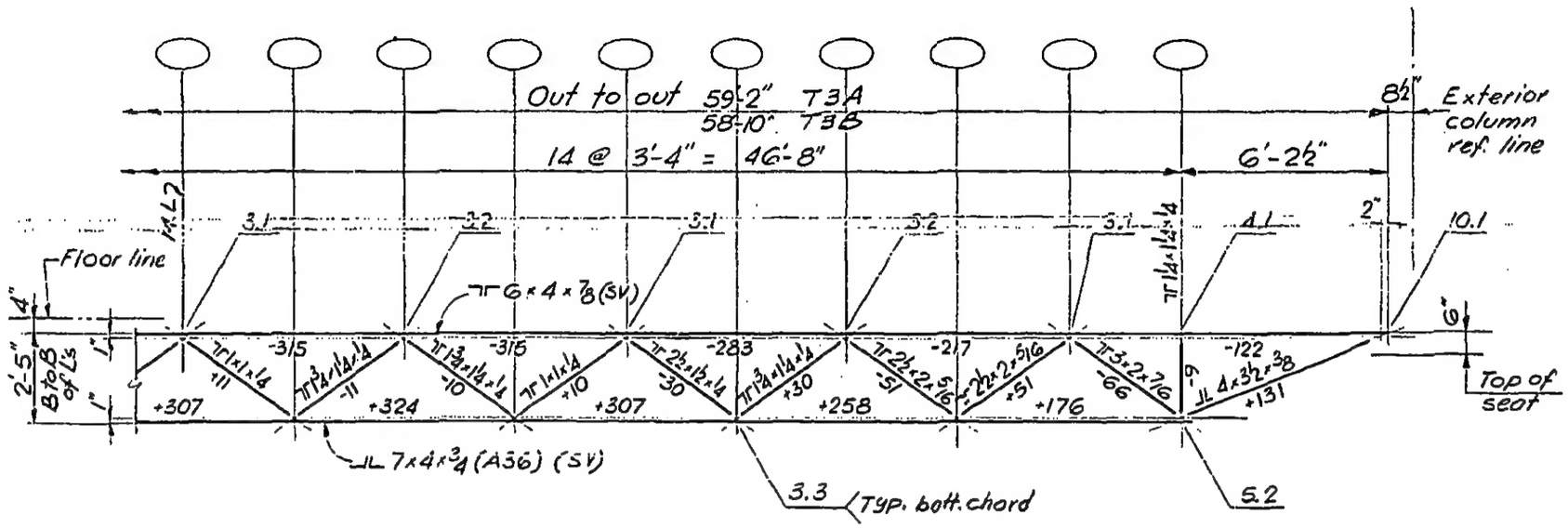
REVIEWED W. Brewer

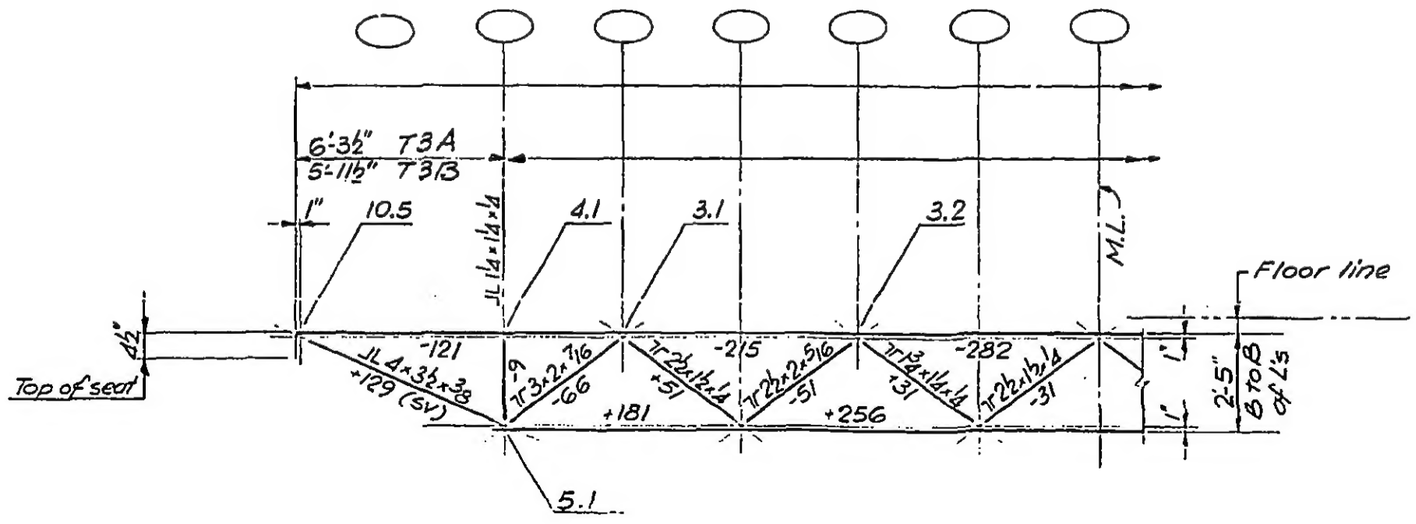
7-B7-3

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T3 | DATE: 3-19-69

REVISIONS





LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

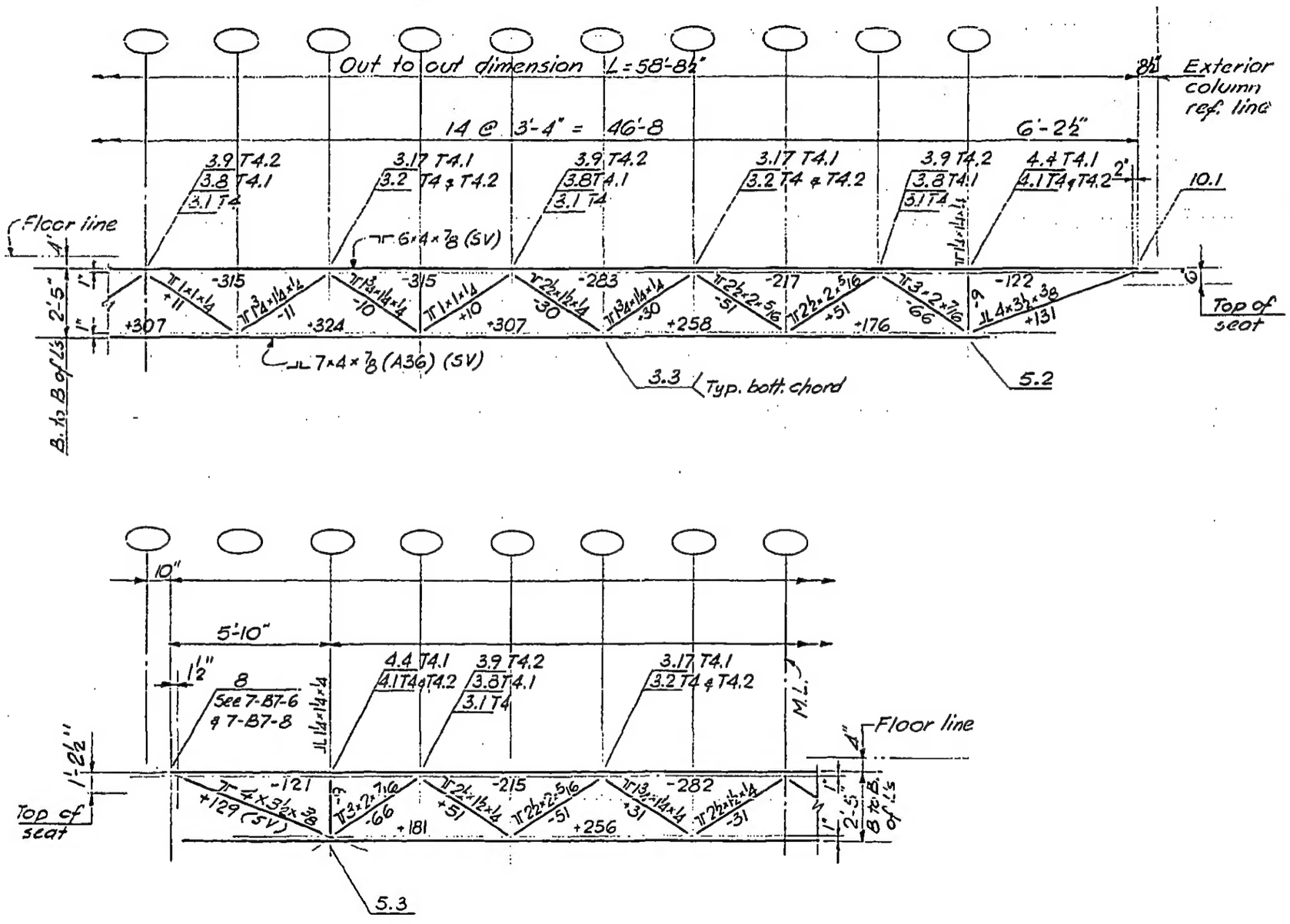
REVIEWED W. Brewer

7-B7-4

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T4, 29T4.1, 29T4.2 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

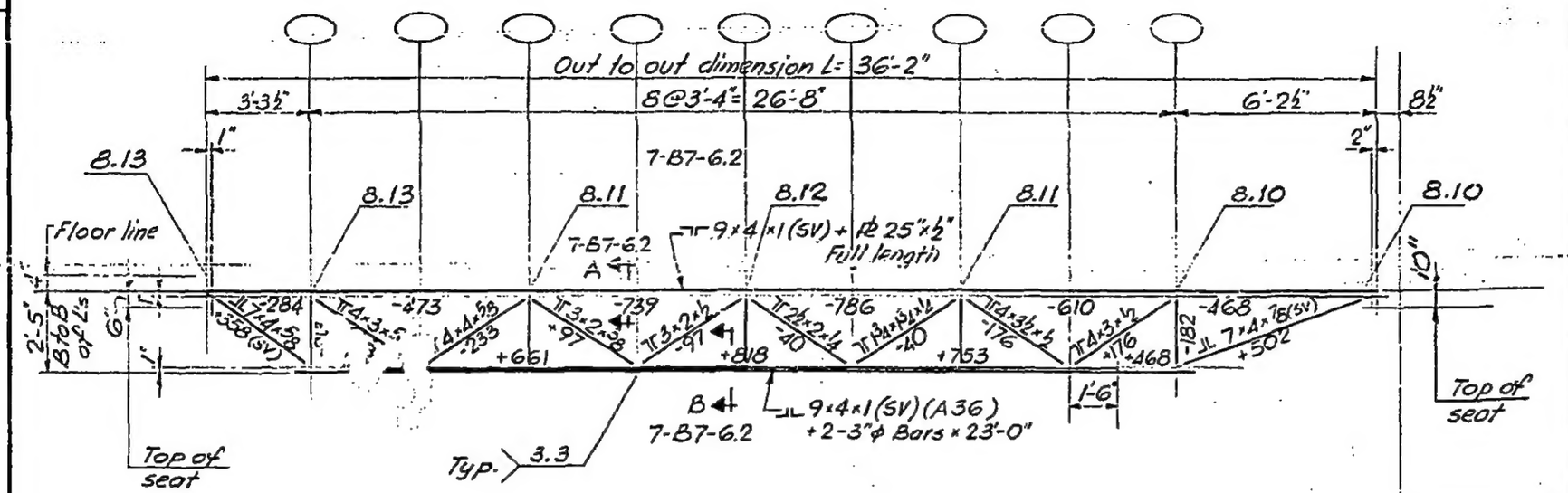
REVIEWED W. Brewer

7-B7-5

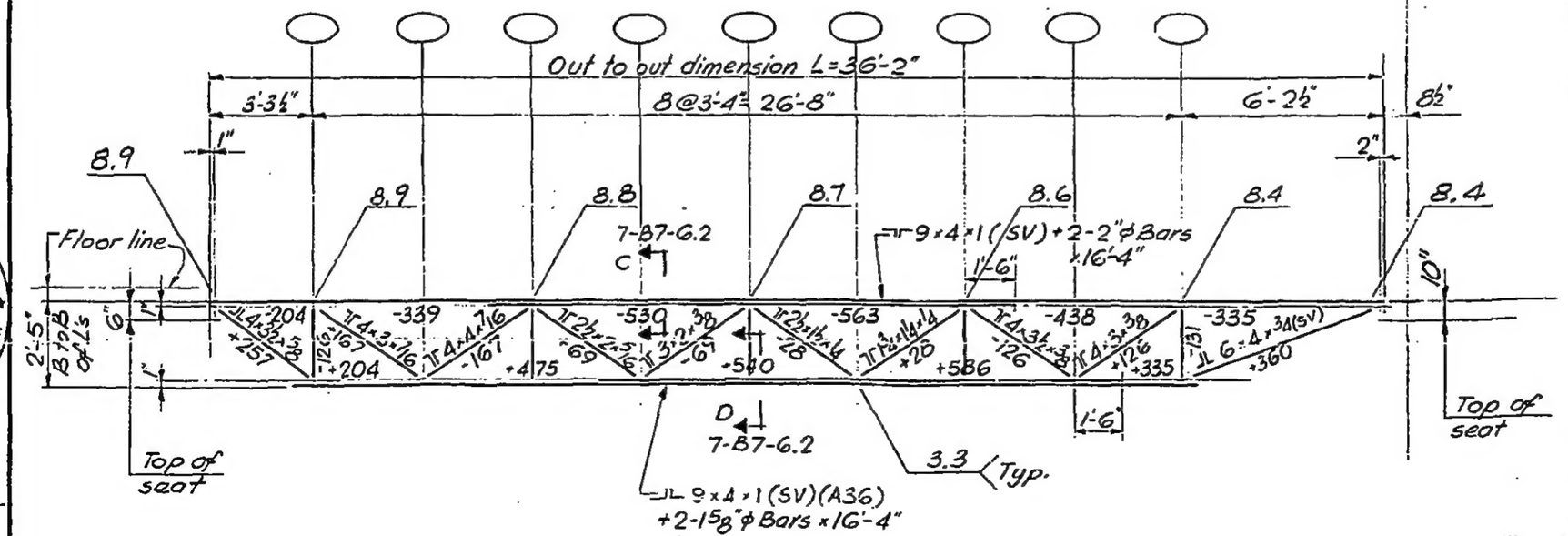
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T5 & 29T6 | DATE: 3-19-69

REVISIONS



Elevation 29T5



Elevation 29T6

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

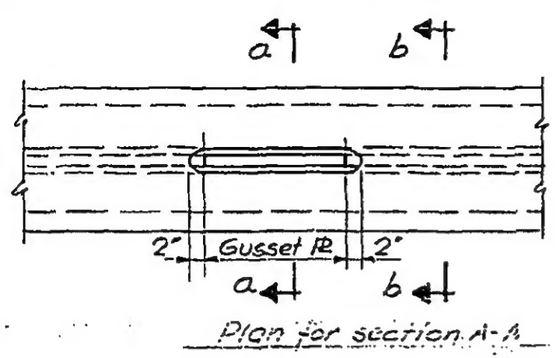
DESIGNED K. H. Wang
DRAWN J. Gricius
REVIEWED W. Brewer

7-B7-6.1

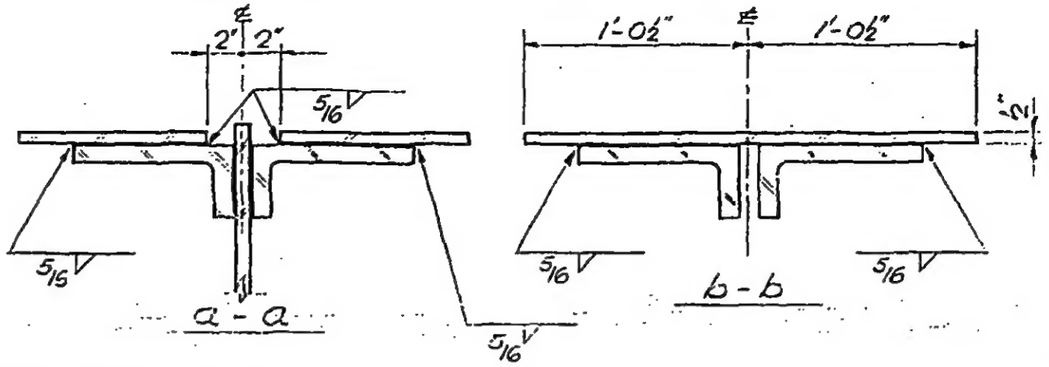
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE FLOOR TRUSS SECTIONS A-A, B-B, C-C, D-D, E-E | DATE 3-19-69

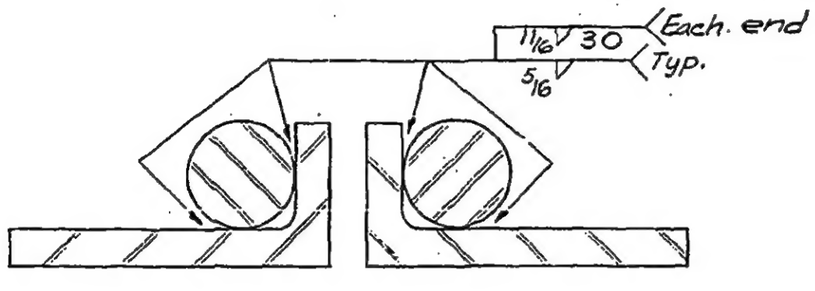
REVISIONS



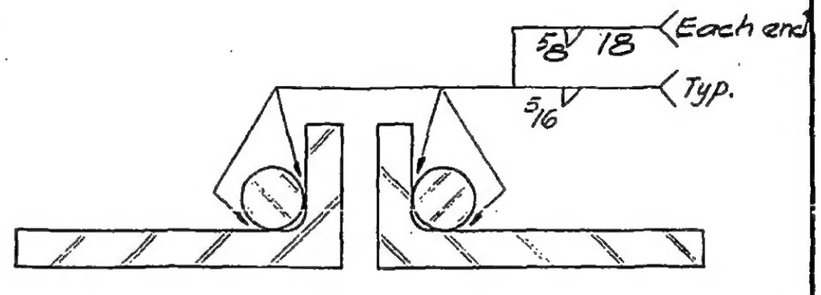
Plan for section A-A



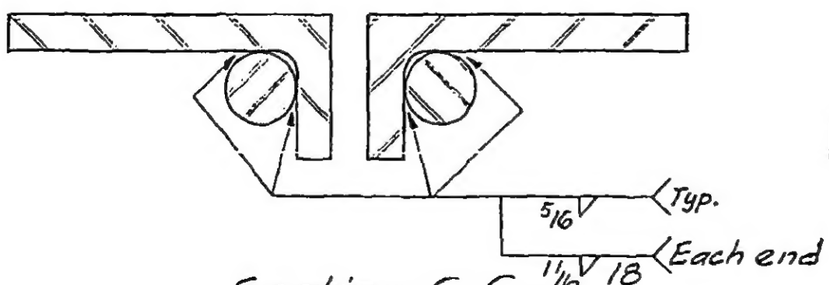
Section A-A



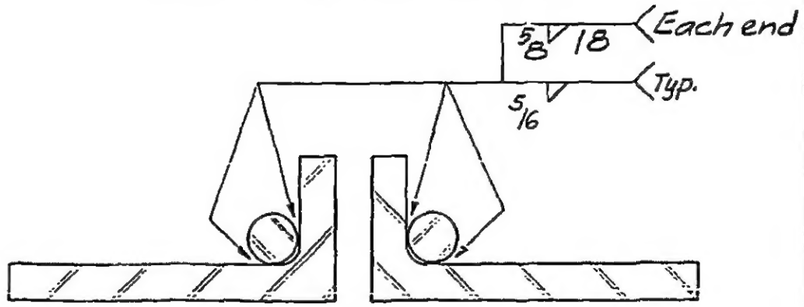
Section B-B



Section D-D



Section C-C



Section E-E

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

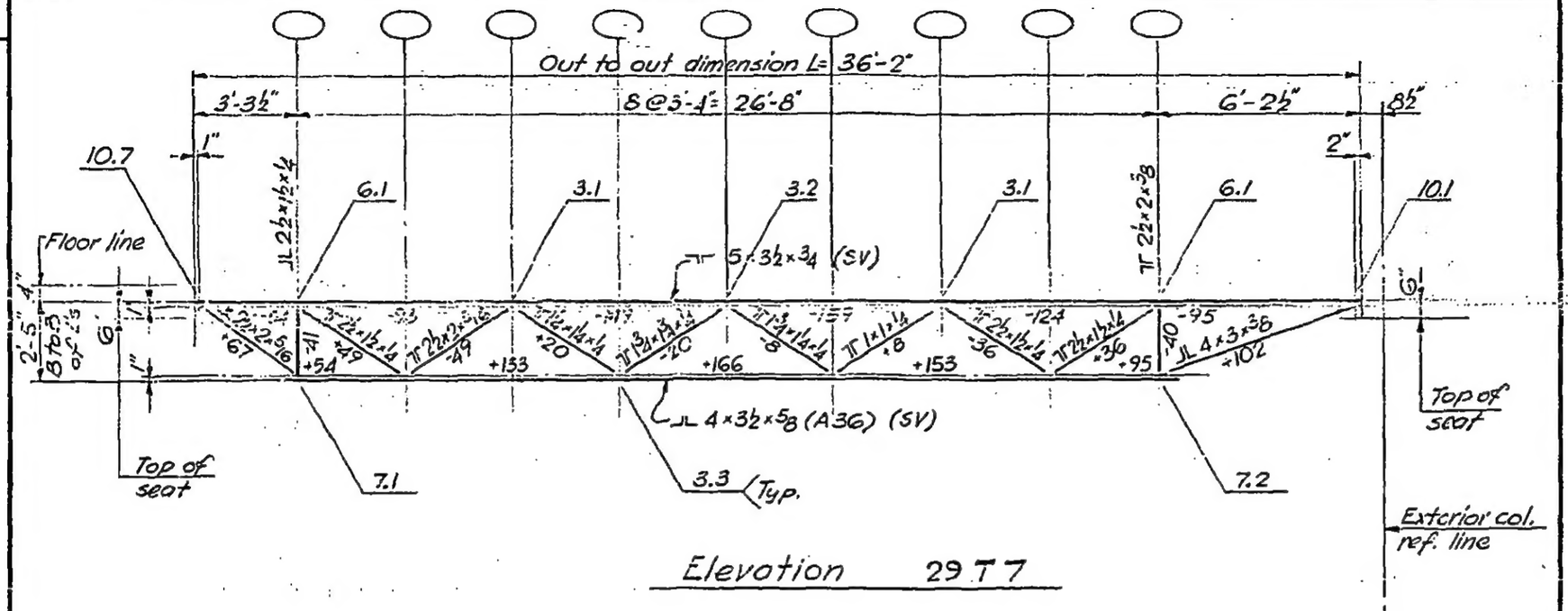
DESIGNED K. Hwang
DRAWN J. Gricius
REVIEWED W. Brewer

7-B7-6.2

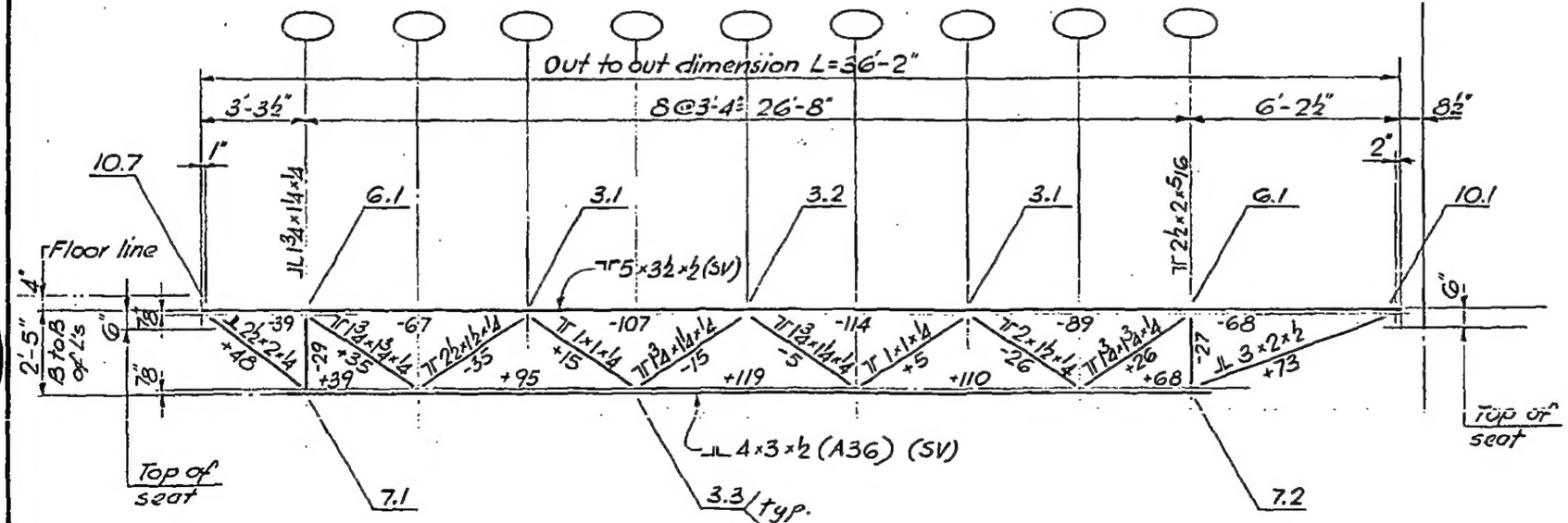
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	FLOOR TRUSS 29T7 & 29T8	3-19-69

REVISIONS



Elevation 29T7



Elevation 29T8

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34500 — UNIVERSITY OF THE STATE OF NEW YORK

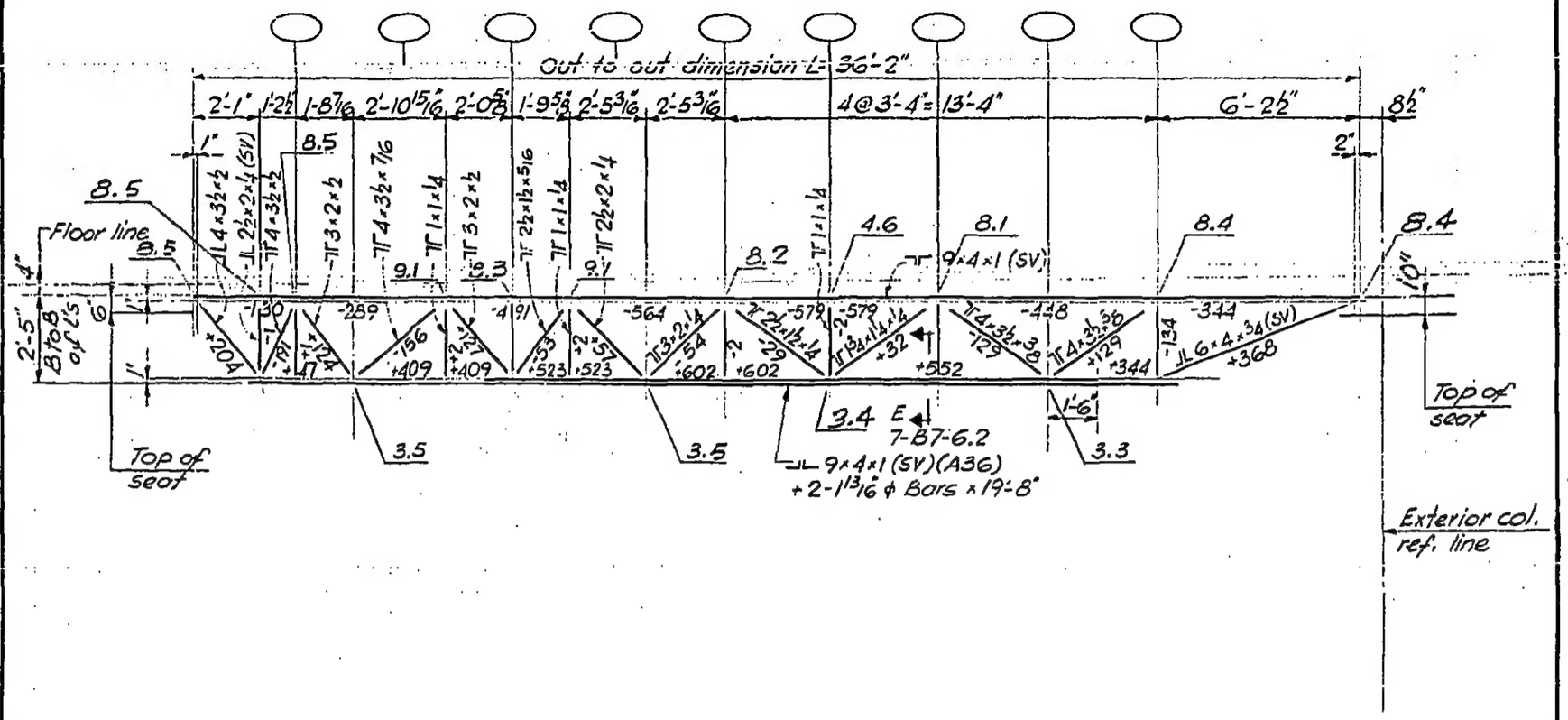
DESIGNED K. Hwong
DRAWN J. Gricius
REVIEWED W. Brewer

7-B7-7

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE FLOOR TRUSS 29T9 | DATE 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

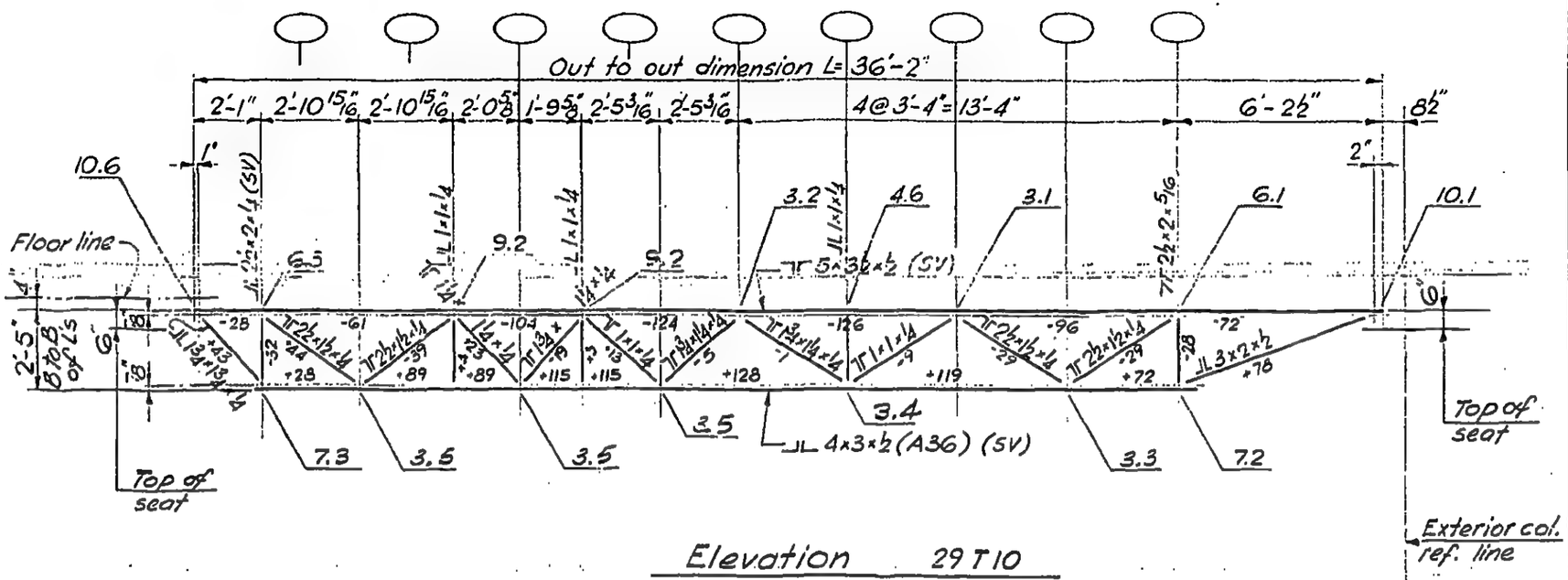
REVIEWED W. Brewer

7-B7-8

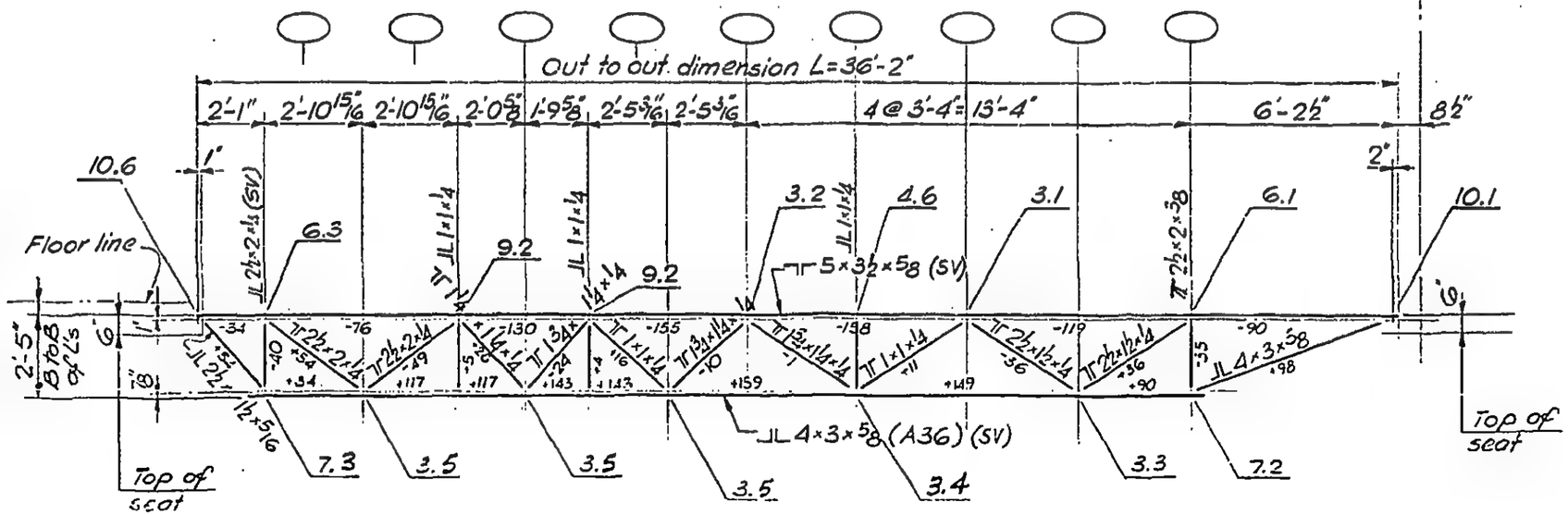
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T10 & 29T11 | DATE: 3-19-69

REVISIONS



Elevation 29T10



Elevation 29T11

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

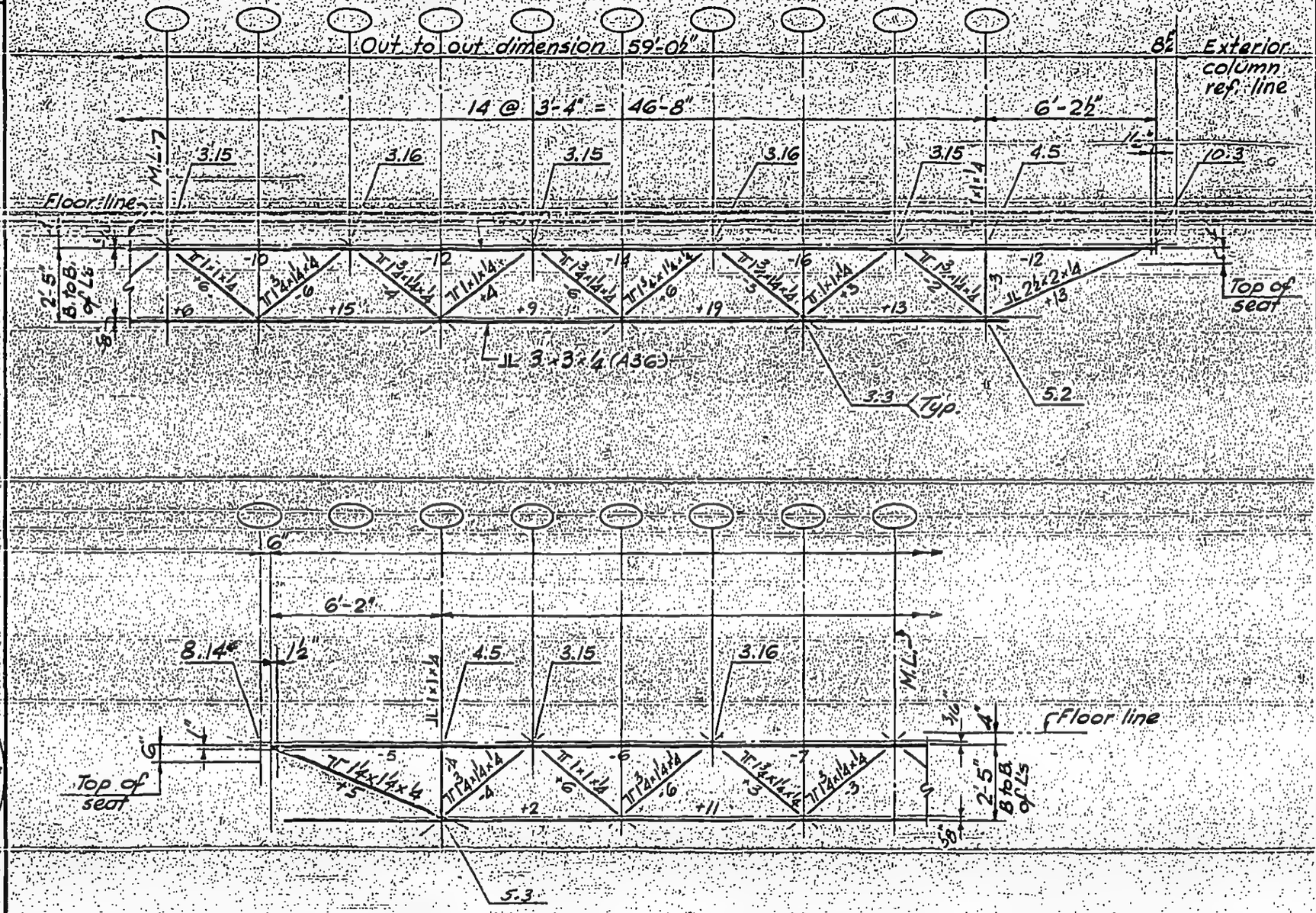
REVIEWED W. Brewer

7-B7-9.

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS - 29 T12 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Shwang

DRAWN J. Gricius

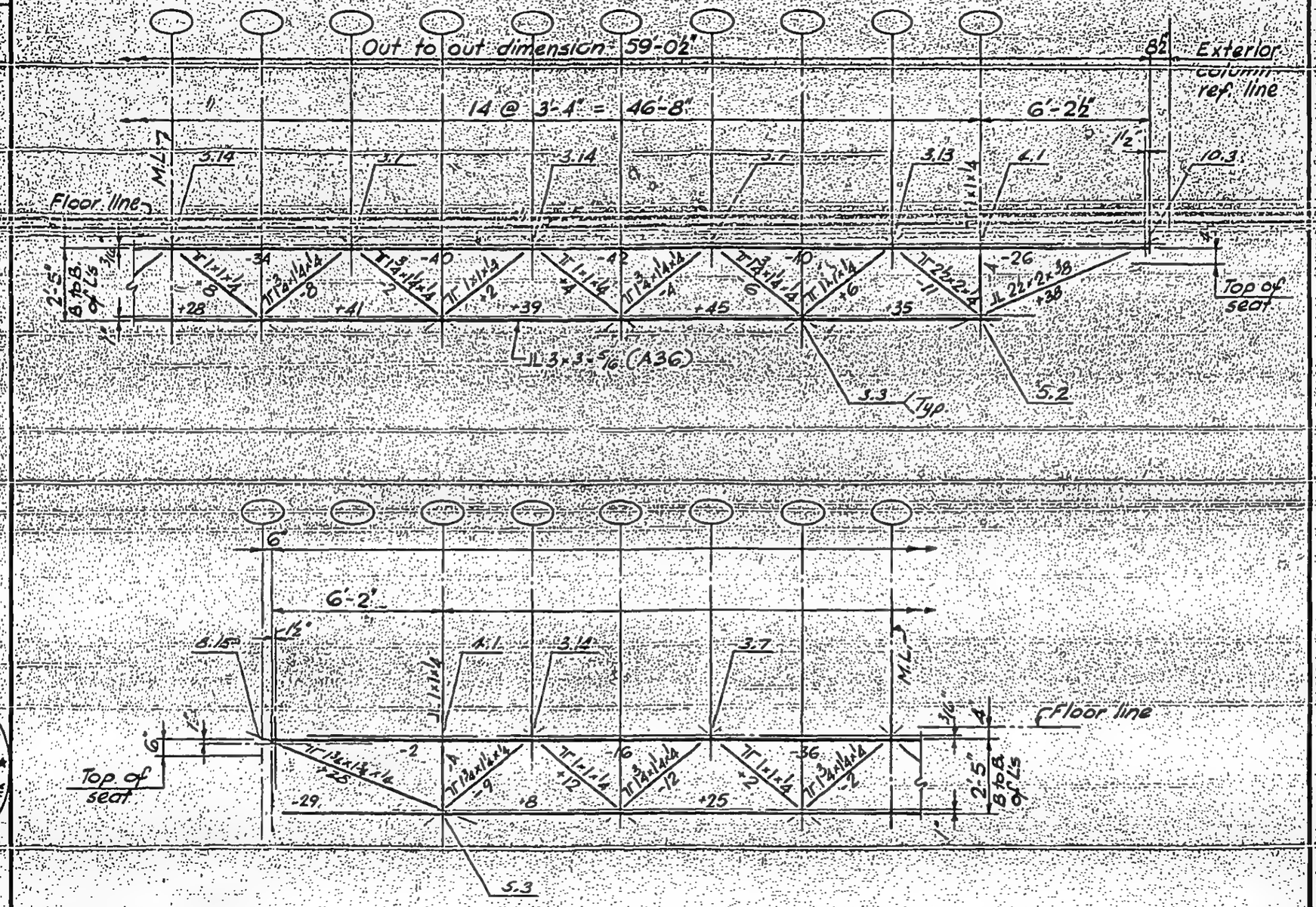
REVIEWED W. Brewer

7-B7-10

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T13 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED: K. Hwang

DRAWN: J. Gricius

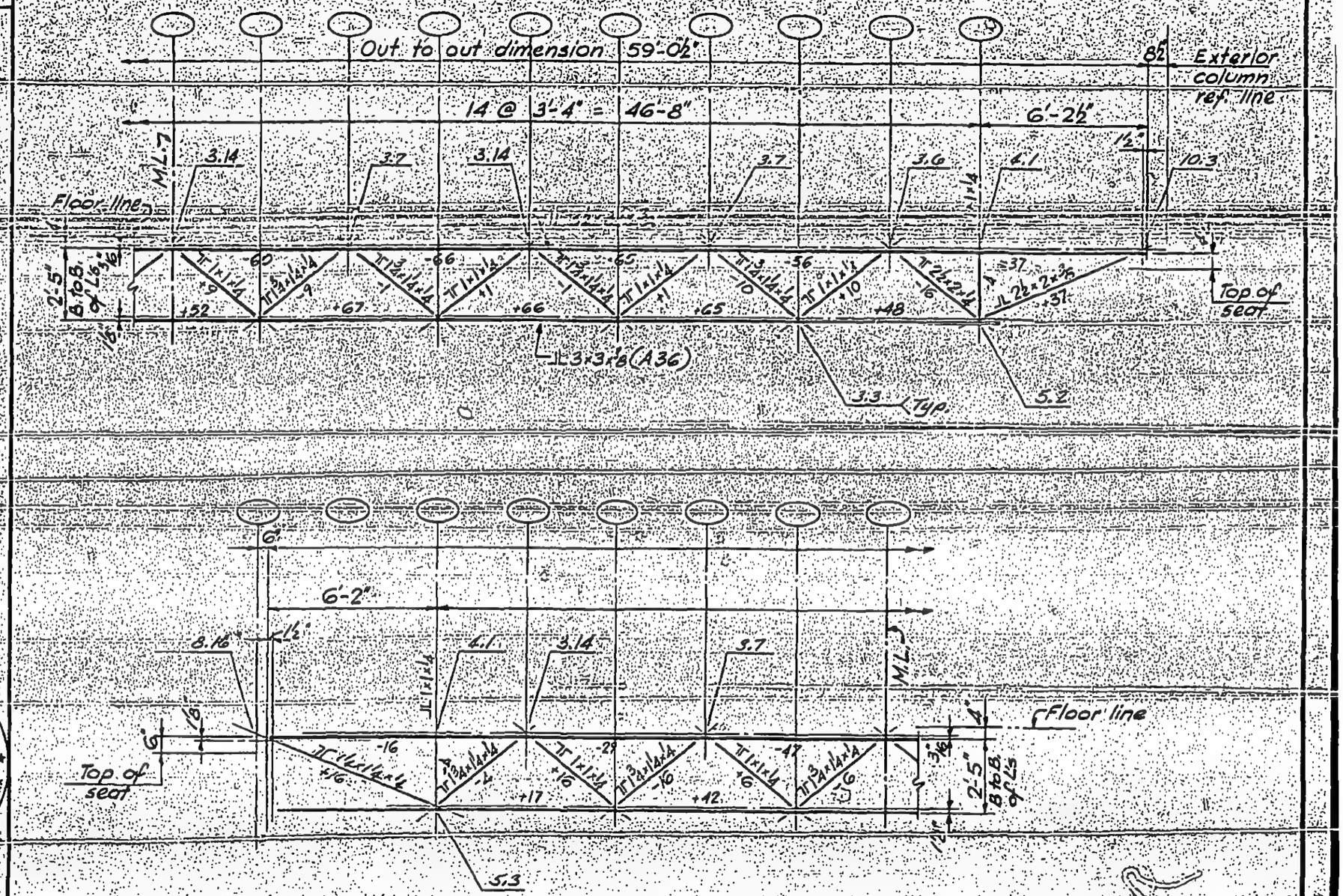
REVIEWED: W. Brewer

7-B7-11

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS - 29T14 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

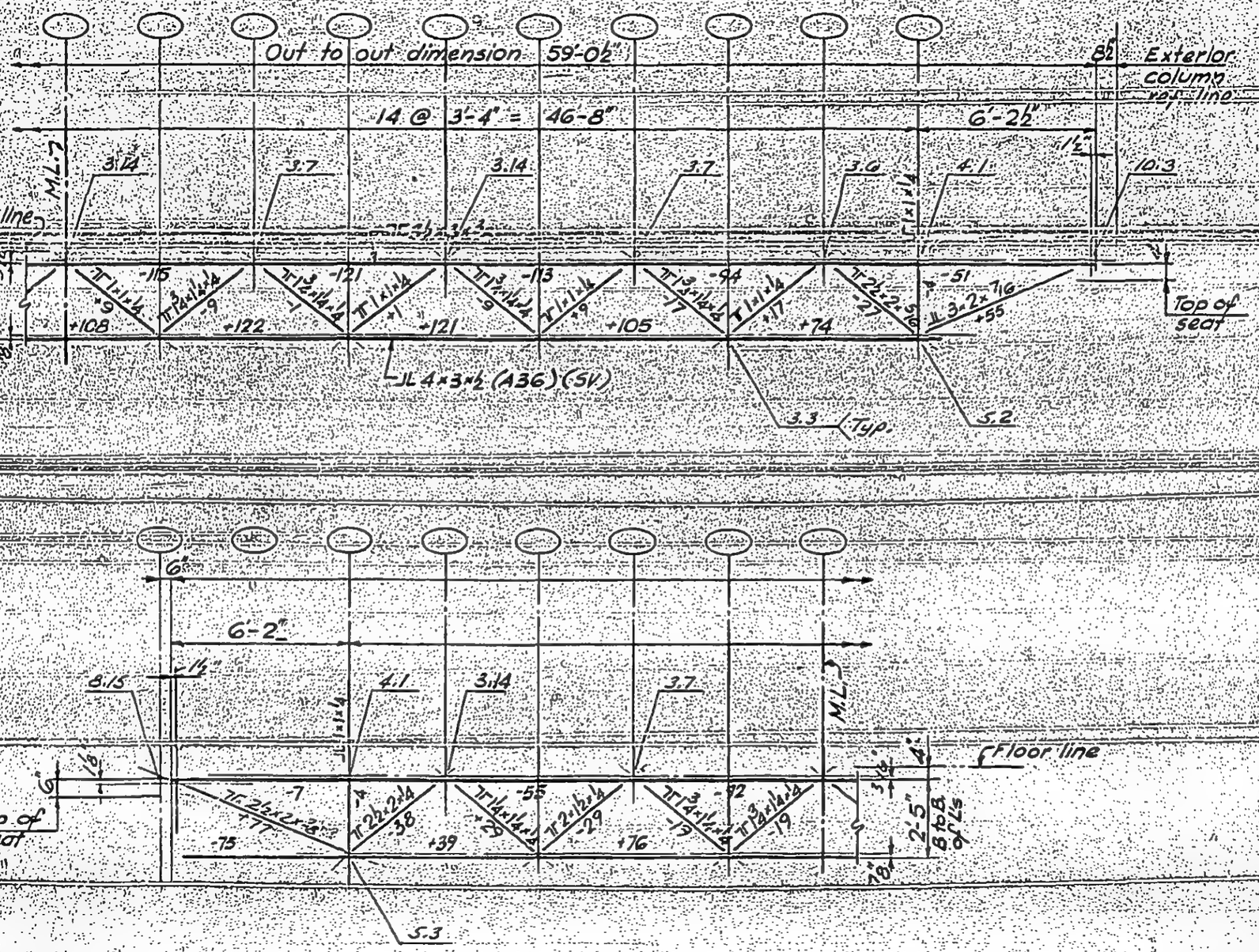
REVIEWED W. Brewer

7-15-72

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T15 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34520 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

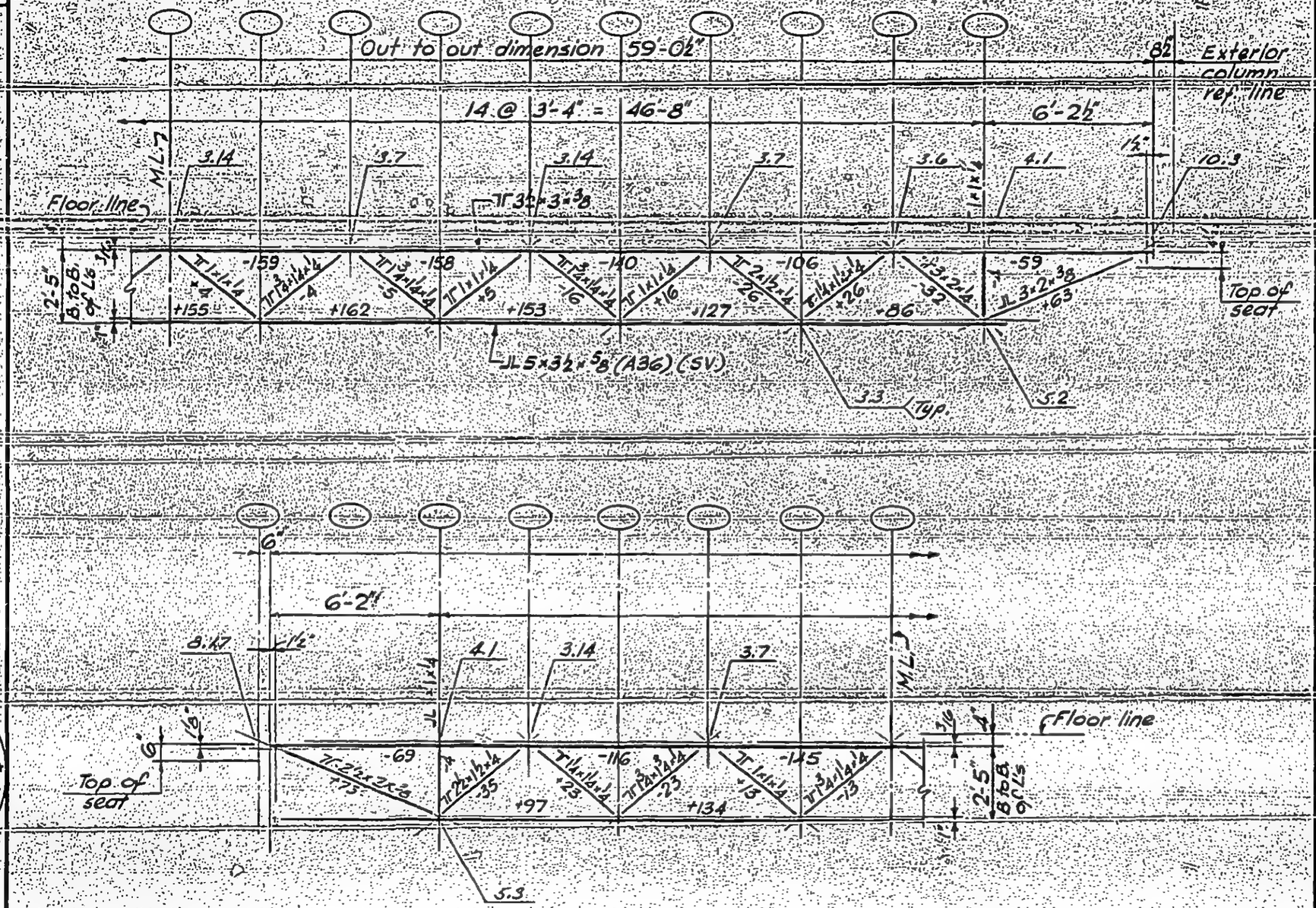
REVIEWED

7-B7-13

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29 T 16 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

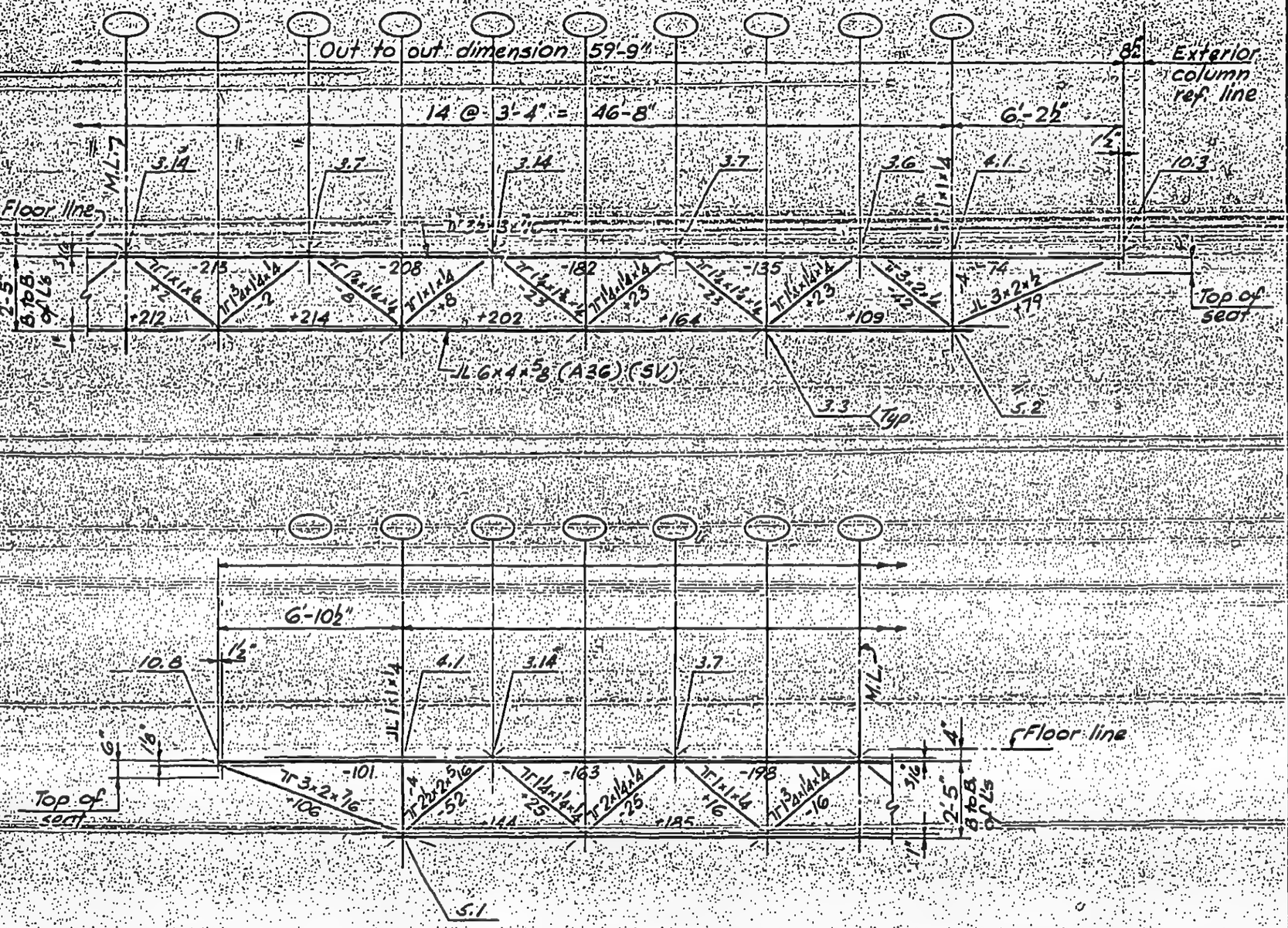
DESIGNED K. Hwang
DRAWN J. Gricius
REVIEWED L.E. Robertson

T-D-14

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS - 29 T.I.T. | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. S. Hwang

DRAWN J. Gricius

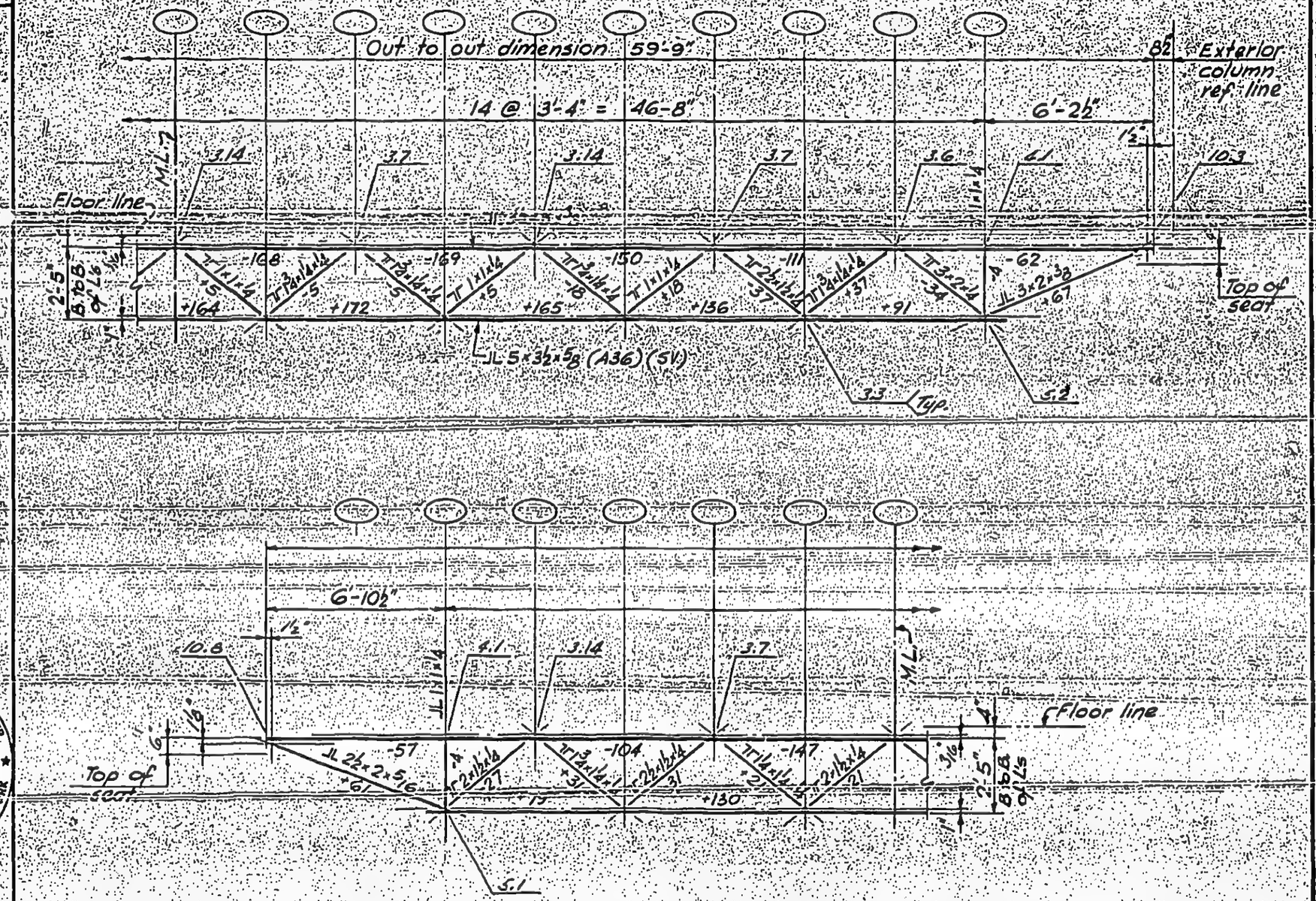
REVIEWED L.E. Robertson

7-87-15

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29 T 18 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Y. Hwang

DRAWN J. Gricius

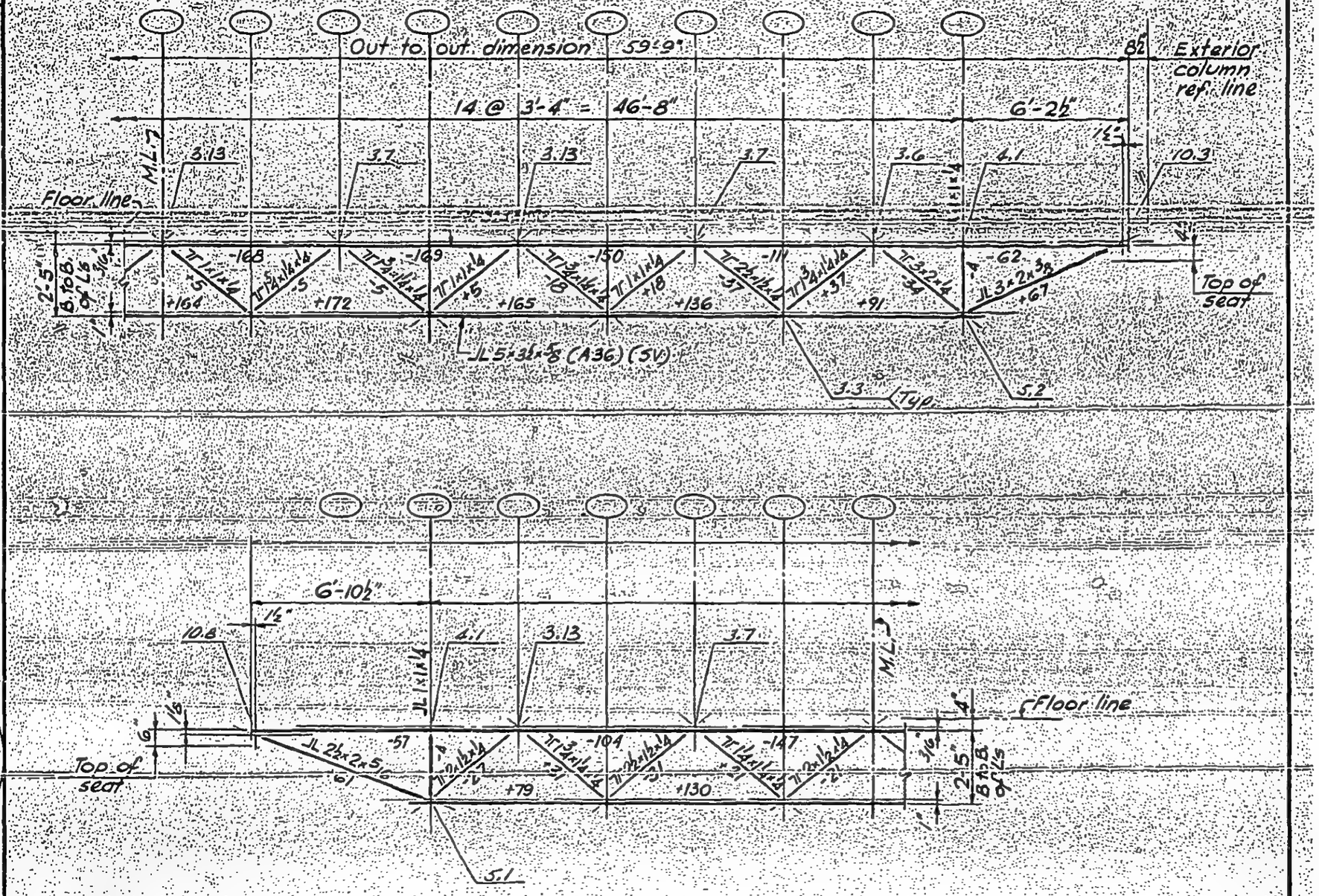
REVIEWED L. E. Robertson

T-B7-16

SKILLING HELLE CHRISTIANSEN ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29 T 19 | DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

REVIEWED W. Brewer

7-B7-17

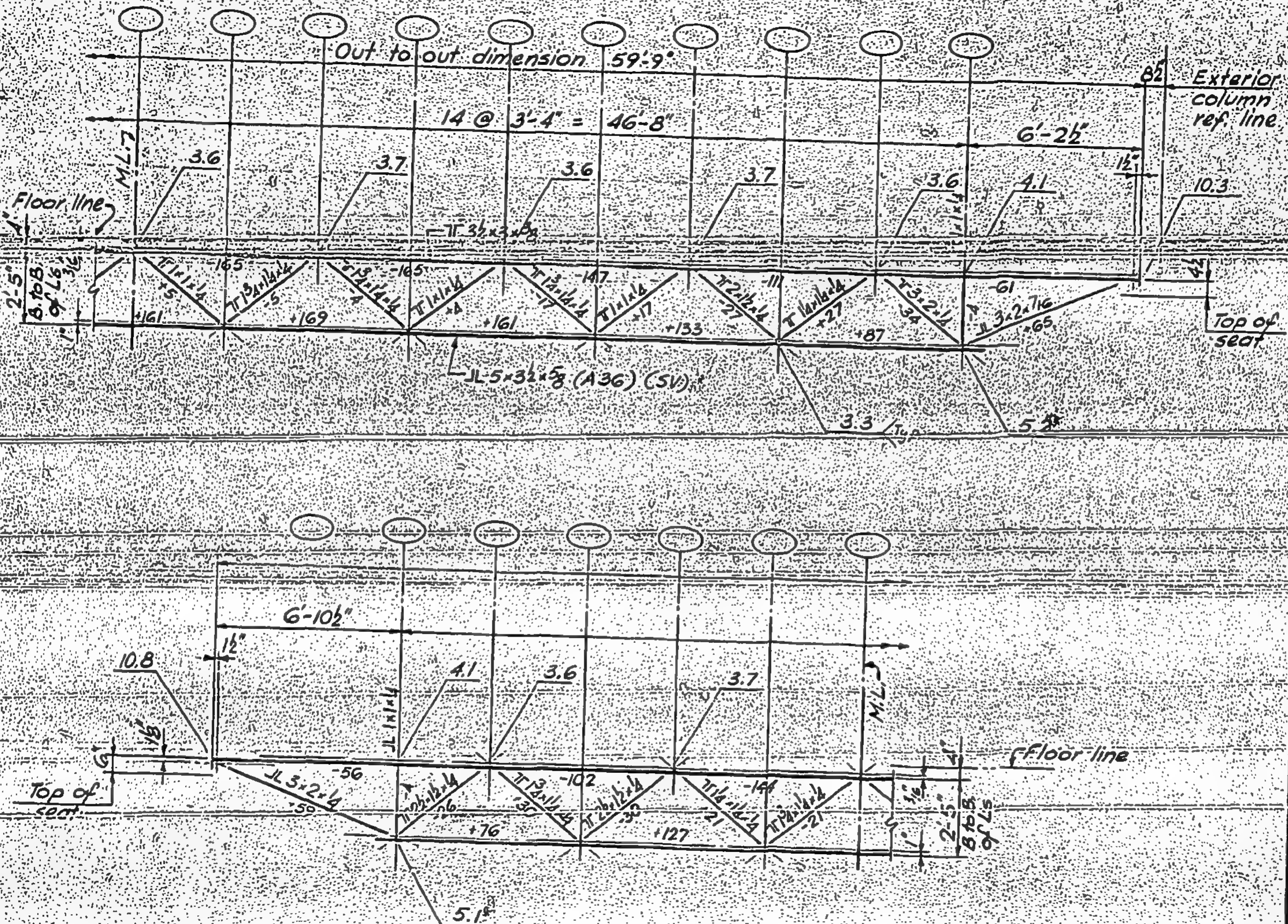
SKILLING HELLE CHRISTIANSEN ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER

TITLE: FLOOR TRUSS 29T20

DATE: 3-19-69

REVISIONS



LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED: K. Hwang

DRAWN: J. Gricius

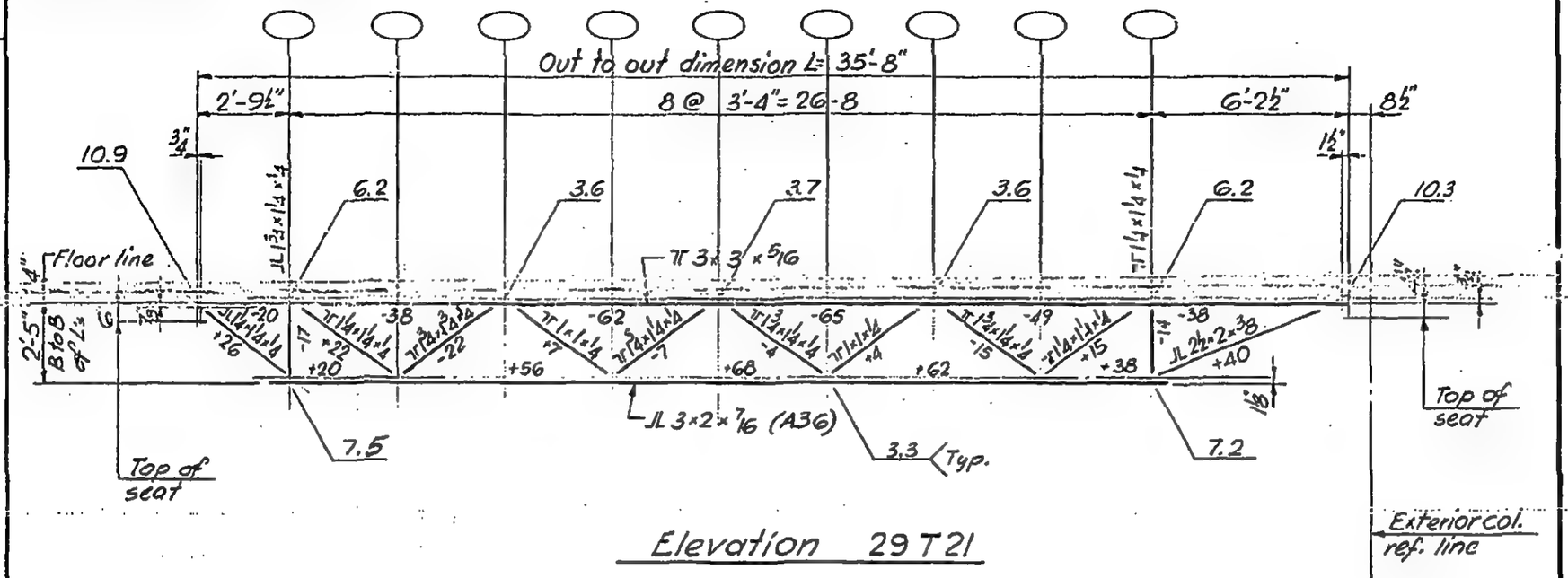
REVIEWED: W. Brewer

7-B7-18

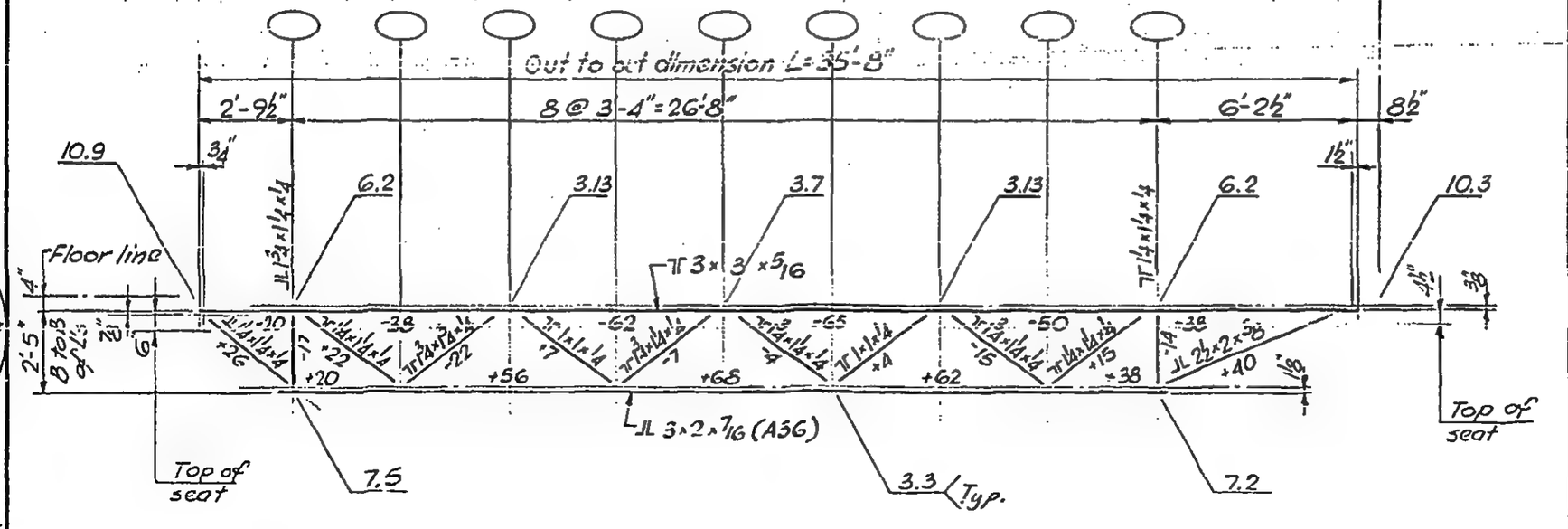
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T21 & 29T22 | DATE: 3-19-69

REVISIONS



Elevation 29T21



Elevation 29T22

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN J. Gricius

REVIEWED W. Brewer

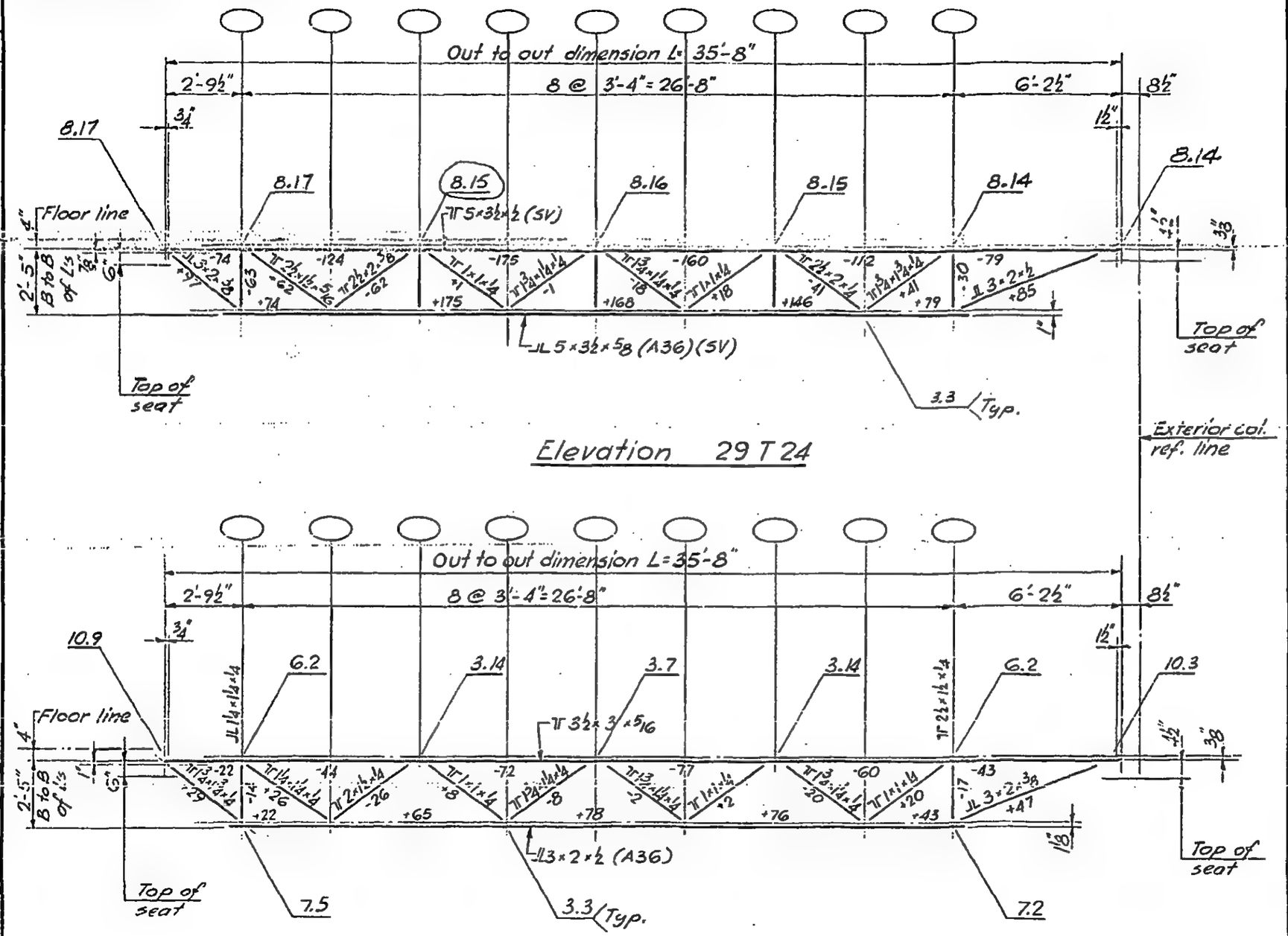
7-B7-19

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS 29T23 & 29T24 | DATE: 3-19-69

REVISIONS

7-14-69



Elevation 29T24

Elevation 29T23

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED: K. Hwang

DRAWN: J. Gricius

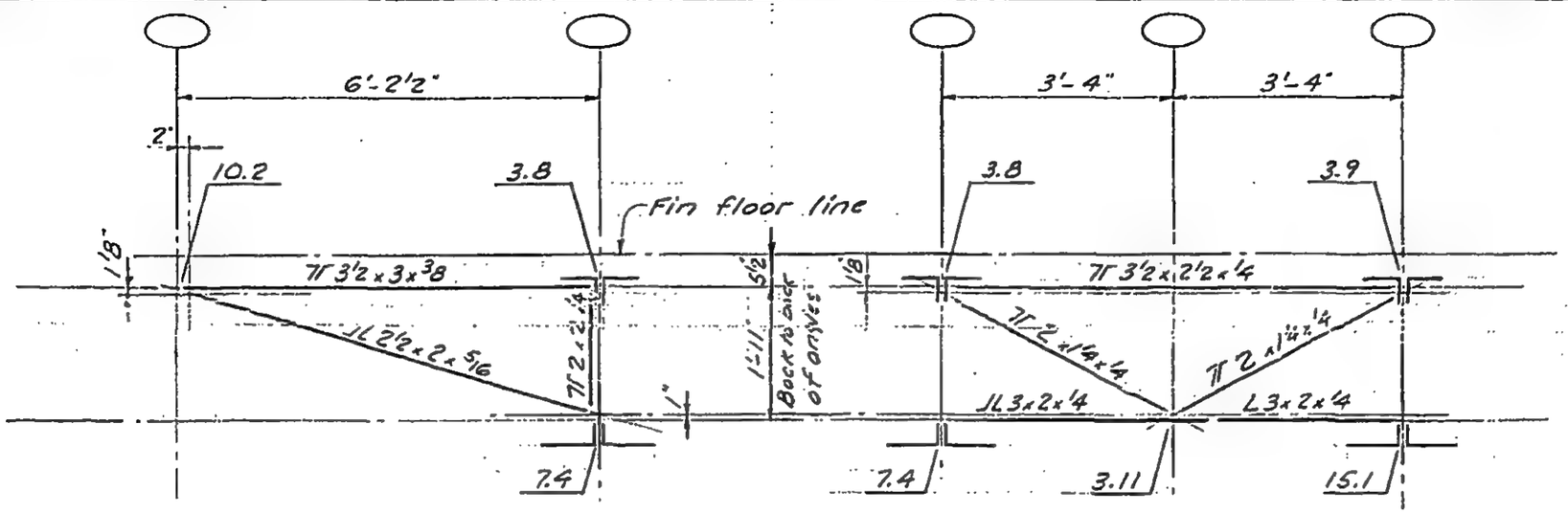
REVIEWED: W. Brewer

7-B7-20

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

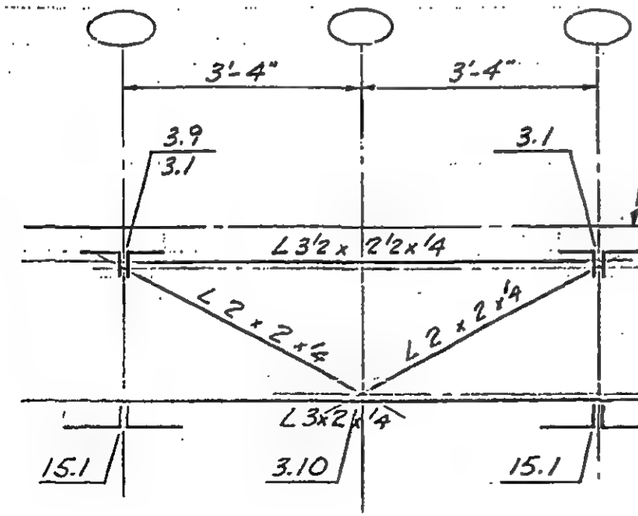
PROJECT THE WORLD TRADE CENTER | TITLE FLOOR TRUSS B1, B2, B3 & B4 | DATE 3-19-69

REVISIONS

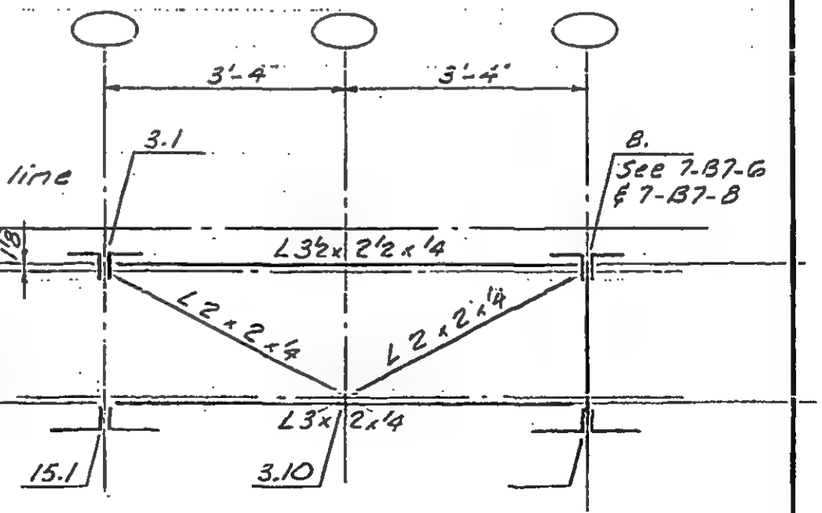


B1

B2



B3



B4

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN A.L. FRANQUI

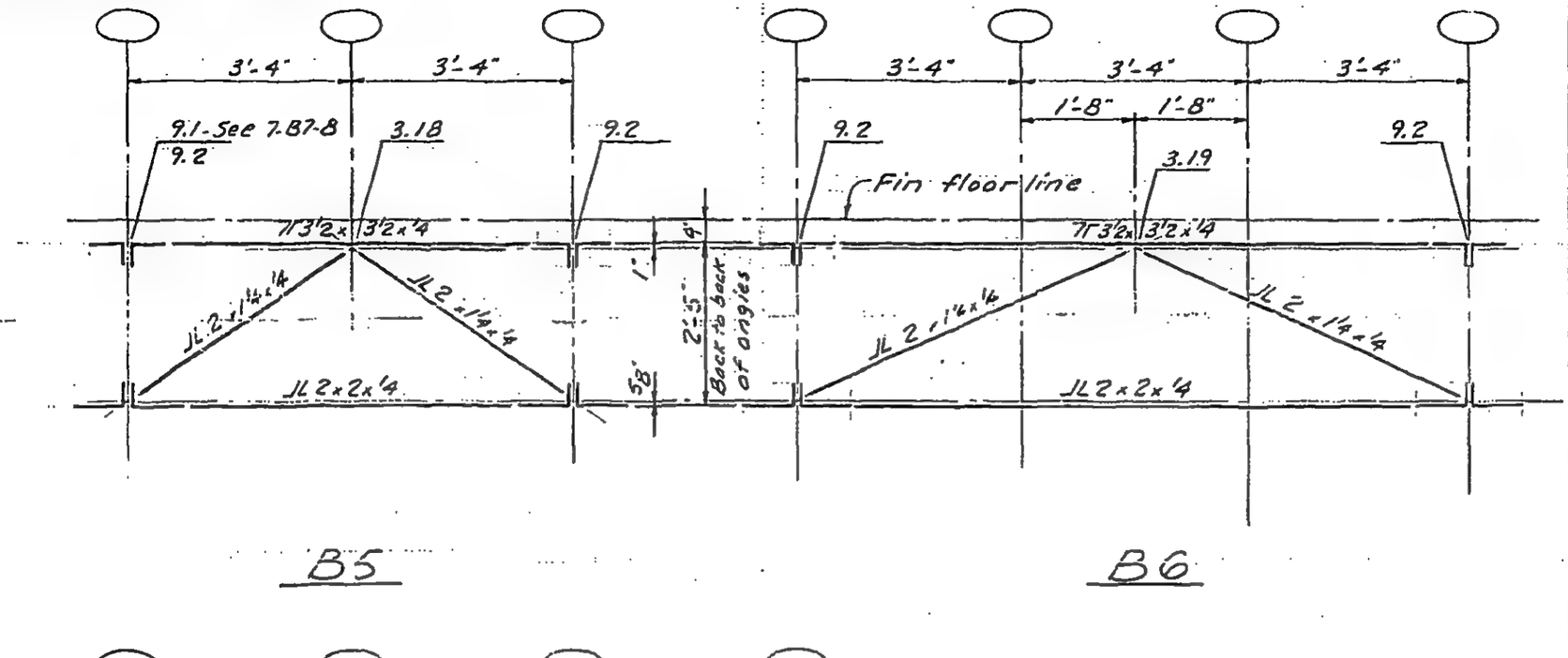
REVIEWED W. Brewer

7-B7-21

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

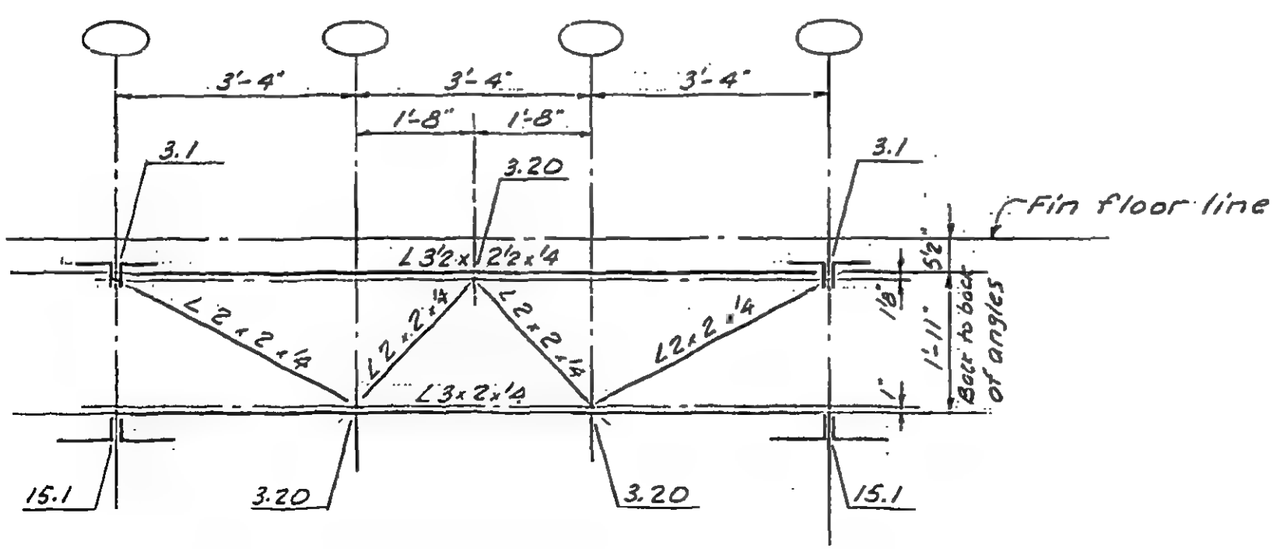
PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS B5, B6 & B7 | DATE: 3-19-69

REVISIONS



B5

B6



B7

DESIGNED K. Hwang

DRAWN A.L. FRANQUI

REVIEWED W. Brewer

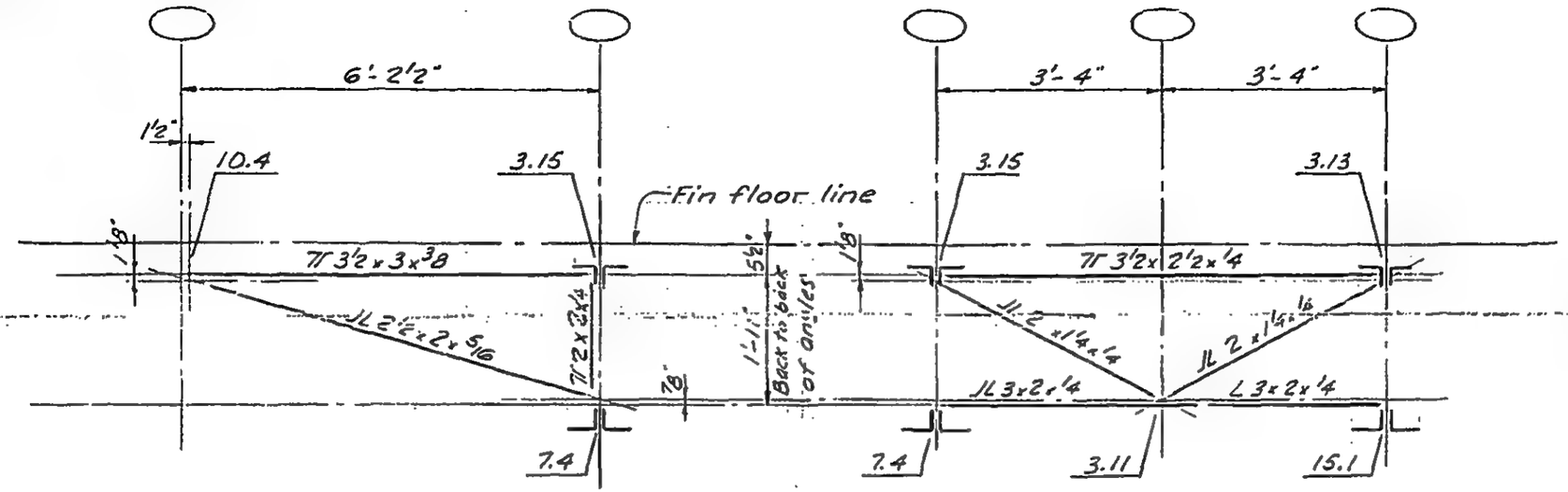
7-B7-22

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

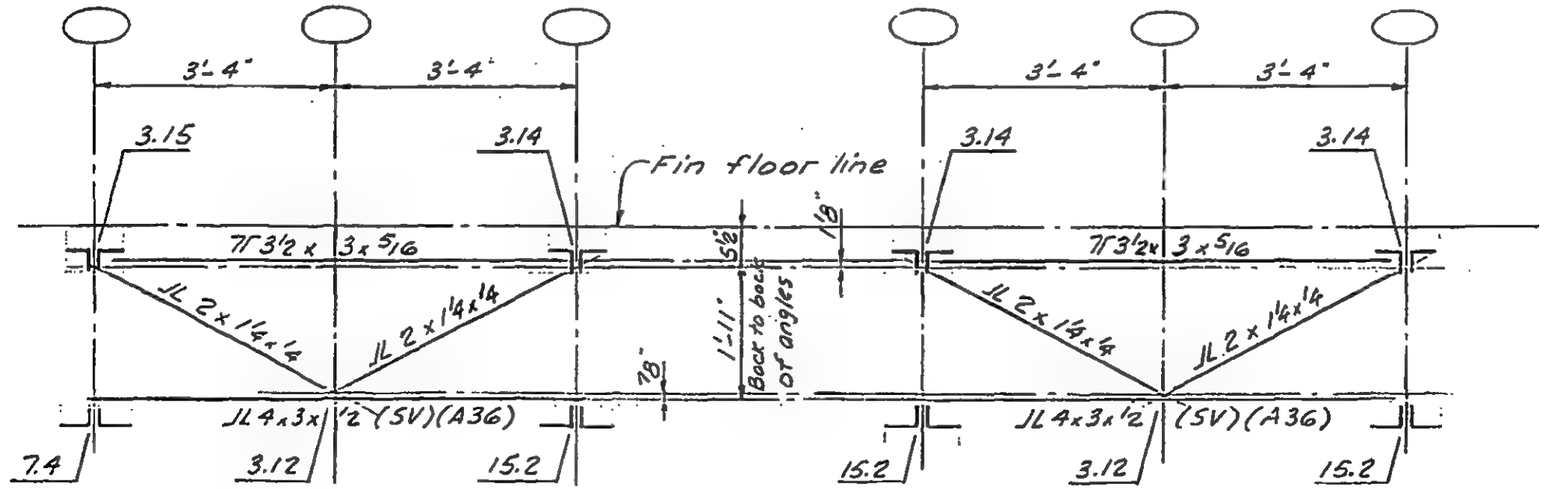
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS B10, B11, B12 & B13 | DATE: 3-19-69

REVISIONS



B10 B11



B12 B13

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

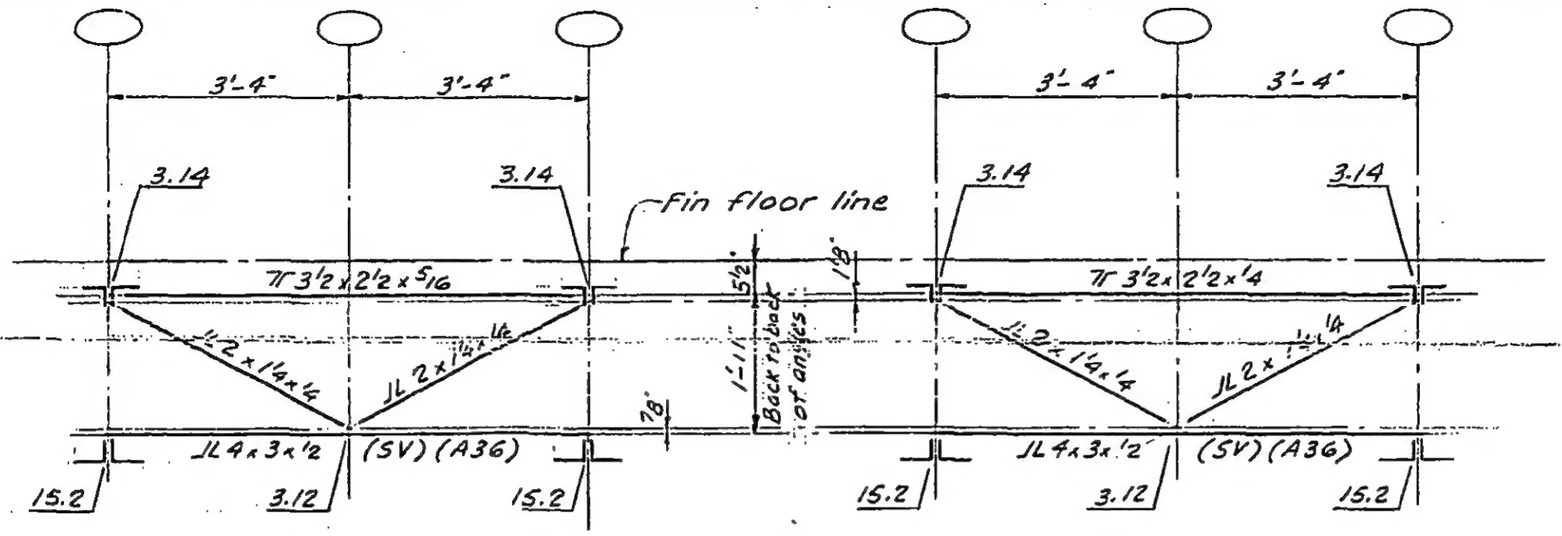
DESIGNED K. Hwang
DRAWN A.L. FRANQUI
REVIEWED W. Brewer

7-B7-23

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

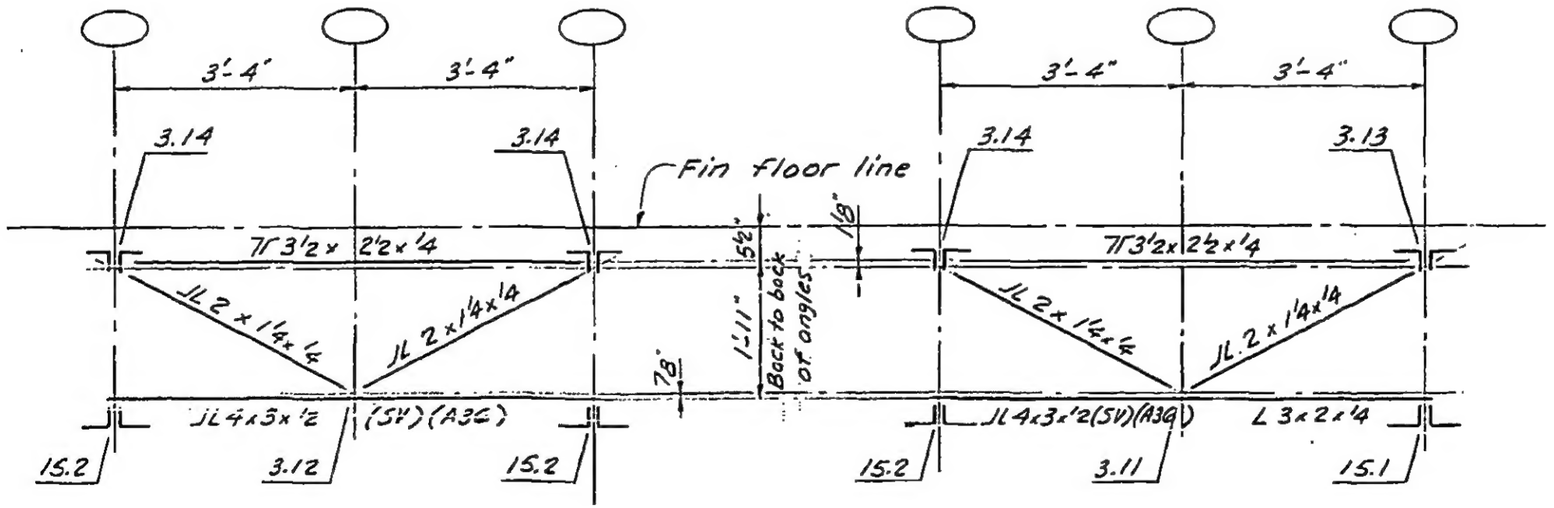
PROJECT THE WORLD TRADE CENTER | TITLE FLOOR TRUSS B14, B15, B16 & B17 | DATE 3-19-69

REVISIONS



B14

B15



B16

B17

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang

DRAWN A.L. FRANQUI

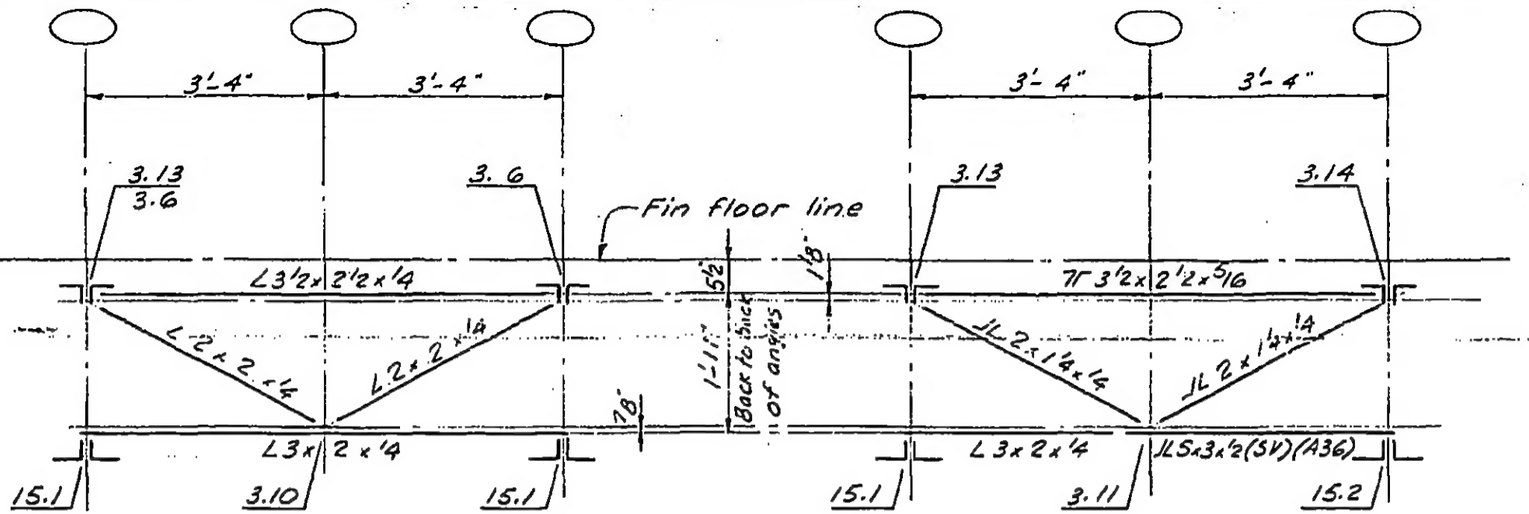
REVIEWED W. Brewer

7-B7-24

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

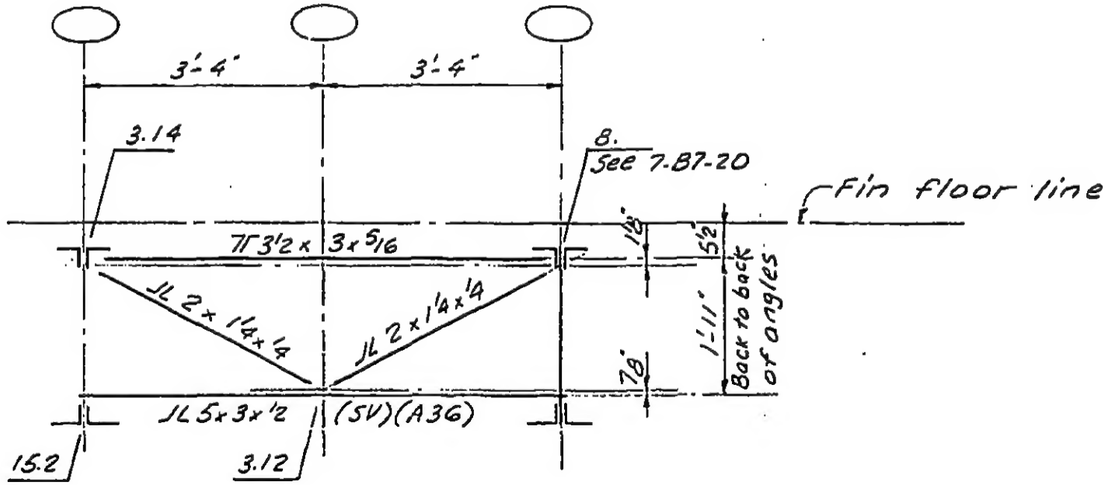
PROJECT: THE WORLD TRADE CENTER | TITLE: FLOOR TRUSS B18, B19 & B20 | DATE: 3-19-69

REVISIONS



B18

B19



B20

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED K. Hwang
DRAWN A.L. FRANQUI
REVIEWED W. Brewer

7-87-25

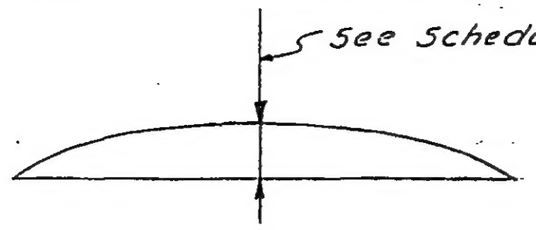
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE FLOOR TRUSS CAMBER DIAGRAMS | DATE 3-19-69

REVISIONS

4-21-69

5-13.69



CAMBER DIAGRAM

Camber Schedule	
Truss No.	Camber at Mid span (in)
29T1	1 7/8
29T2	1 15/16
29T3	2 1/16
29T4	2 1/8
29T5	1
29T6	1 1/16
29T7	13/16
29T8	5/8
29T9	1 1/16
29T10	13/16
29T11	7/8
29T12	1/2
29T13	13/16
29T14	1
29T15	1 1/2
29T16	1 11/16
29T17	2 1/16
29T18	2
29T19	2 1/8
29T20	2 1/16
29T21	1/2
29T22	1/2
29T23	5/8
29T24	11/16

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN A.L. FRANQUI

REVIEWED

7-B7-26

WT91-1061-LERA